

United States Air Force Environmental Management Systems Review



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Submitted to:

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EXECUTIVE SUMMARY

The Environmental Division (ILEV) in the office of The Air Force Civil Engineer is responsible for enhancing U.S. Air Force (AF) operational readiness by effectively managing and conserving environmental resources, ensuring compliance, and supporting global environmental stewardship. As part of the Air Force's ongoing responsibility in this area, ILEV must ensure AF installations meet the requirements of the series of new Executive Orders (EOs) for the "Greening of Government" and incorporate them into future Air Force environmental compliance and pollution prevention programs.

Of particular relevance, Section 401 (a) of EO 13148, *Greening the Government Through Leadership in Environmental Management* (April 2000), requires all federal agencies to perform a self-assessment using a recognized Environmental Management System (EMS) framework as a benchmark. Accordingly, this report analyzes the current environmental programmatic infrastructure established by AF policy directives, instructions, and guidance against two EMS models. Specifically, the AF Environmental Program is compared to the specifications of ISO 14001 *Environmental Management Systems – Specification with Guidance for Use* (1996) and the Environmental Protection Agency's *Code of Environmental Management Principles (CEMP)*.

ISO 14001 is an international standard that provides an organization with a framework to proactively manage its environmental responsibilities and reduce its environmental impacts. CEMP is the environmental program developed by the Environmental Protection Agency in response to Executive Order 12856, and consists of a collection of five broad principles and underlying performance objectives that provide a basis for Federal agencies to move toward responsible environmental management.

This report identifies the similarities between the AF Environmental Program and the respective EMS models to illustrate relative levels of alignment and conformance. Additionally, differences or "Gaps" between existing AF programs and the provisions of ISO 14001 and CEMP are highlighted. The selection of these two EMS models provides AF decision makers with a range of possible options for Service-wide implementation.

Specific objectives of the analysis encompass the following:

- Identify the level of alignment and conformance of the AF Environmental Program with the elements of the two EMS models addressed by this study
- Evaluate the results of the AF EMS review to understand possible conflicts between existing AF environmental requirements and ISO 14001 and CEMP
- Identify the most appropriate EMS (or combination of systems) for potential Service-wide application
- Provide input to the development of a formalized implementation plan, where necessary, to address EMS gaps and facilitate system integration.

Based on an analysis of the study's findings, the AF Environmental Program substantively fulfills the majority of requirements of a conforming ISO 14001 EMS. Review and evaluation of the Service's environmental management infrastructure also demonstrates that AF fully addresses the key principles and related performance objectives of CEMP, with minor exceptions. Selected key areas of enhancement necessary for full conformance to prescribed EMS guidelines include:

ISO 14001

- Commitment and Policy – ISO 14001 requires the organization's environmental policy to establish the mechanism for setting and reviewing environmental program objectives. The Air Force policy articulated in AF Policy Directive (AFPD) 90-8 *Environment, Safety, and Occupational Health* and AFPD 32-70 *Environmental Quality* does not include this requirement. Air Force Instruction (AFI) 32-7005 *Environmental Protection Committees* states that the HQ USAF EPC "reviews adequacy of policies, resources and performance in meeting environmental goals and makes recommendations on changes required." AFI 32-7005 does not state whether the EPC sets the environmental goals.
- Environmental Aspect and Impact Analysis Procedure – The Air Force requires clear procedures to systematically identify the environmental aspects of its activities in order to determine which have or can have significant impacts on the environment. Current AFIs are limited to National Environmental Policy Act impact analysis (AFI 32-7061) or focus strictly on regulatory compliance standards (Draft AFI 32-7080). As a result, this approach may overlook important environmental aspects of AF activities, products, and services and diminish the significance of potentially important environmental impacts. The omission of these environmental activities also compromises the setting of related environmental objectives and targets.
- Environmental Management Review – The Air Force does not currently conform to ISO 14001 in the development and implementation of an EMS auditing program. The current ECAMP process is very effective at identifying compliance findings but it is not intended to be an EMS auditing tool, according to the ISO 14001 definition. The Environmental Management Self-Assessment process introduced as an addition to Environmental Compliance Assessment and Management Program does not appear to be well defined. Deficiencies in the EMS auditing arena create problems for the management review element of the EMS because of inadequate performance data input for senior managers to adjust the EMS and create the basis for continual improvement.

The review also identified several minor items that need to be addressed to completely align with EMS model requirements:

- A simple AF environmental policy roadmap is required to clarify the linkages between the overall AF EMS and the numerous AFIs and other policy and guidance documents.













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- A formal AF process to identify, track, and disseminate updates to applicable legal environmental requirements needs to be established.
 - Existing AF document control policies and procedures need to be reviewed for consistency with the specifications of ISO 14001. Identified revisions should be incorporated into the Air Force Manual document control framework.
 - AF EMS management review procedures need to encompass expanded data inputs from EMS audit results that transcend the current compliance-oriented data.






CEMP

- Methods for communicating AF environmental and EMS activities to the public and neighboring communities should be incorporated into overarching AF Environmental Safety and Occupational Health and environmental policy.
- Explicit performance measures, quantifiable if possible, should be developed to monitor EMS performance. These should focus on the identified environmental aspects and impacts, rather than maintaining a compliance-focus.
- Benchmarking should be routinely performed to calibrate performance against federal agency and private sector counterparts to foster continuous improvement.

A summary of the AF EMS review findings and observations, including a qualitative ranking against respective EMS model guidelines, is provided in the table on the following page.

AIR FORCE EMS REVIEW – SUMMARY OBSERVATIONS

MANAGEMENT SYSTEM ELEMENT	EMS REVIEW COMMENTS AND OBSERVATIONS	SUMMARY EVALUATION	
		ISO 14001	CEMP
Commitment and Policy	<p><i>ISO 14001 Specifications</i></p> <ul style="list-style-type: none"> Current top-level AF policy (AFPD 90-8, AFPD 32-70) does not explicitly establish the process for identifying significant impacts and the setting and review of related objectives. No policy roadmap that ties the elements of the Air Force EMS to the complex network of AF policies and guidance. <p><i>Unique CEMP Elements</i></p> <ul style="list-style-type: none"> Air Force CTP2 program provides for the explicit treatment of compliance assurance and pollution prevention. Environmental stewardship and sustainable development are addressed. 		
Planning	<p><i>ISO 14001 Specifications</i></p> <ul style="list-style-type: none"> Air Force has established a compliance focused system that includes the development of regulatory compliance and P2 objectives. Regulatory focused objective setting processes may not identify the full range of relevant environmental aspects, related significant impacts, and supporting performance measures. <p><i>Unique CEMP Elements</i></p> <ul style="list-style-type: none"> Compliance Assurance and Pollution Prevention Program fully conforms. 		
Implementation and Operation	<p><i>ISO 14001 Specifications</i></p> <ul style="list-style-type: none"> Structured and organized environmental program implementation and operational controls. Procedures for document control are established; however, they need to be reviewed and revised to address EMS-specific requirements <p><i>Unique CEMP Elements</i></p> <ul style="list-style-type: none"> Strong pollution prevention program and formal reward mechanisms. 		
Checking and Corrective Action	<p><i>ISO 14001 Specifications</i></p> <ul style="list-style-type: none"> Strong compliance audit (ECAMP) process. EMS audit procedures are not fully defined. <p><i>Unique CEMP Elements</i></p> <ul style="list-style-type: none"> Environmental program performance monitoring focuses on compliance assurance and pollution prevention. 		
Management Review (Continuous Improvement)	<p><i>ISO 14001 Specifications</i></p> <ul style="list-style-type: none"> Management review process does not draw upon audit information beyond the compliance arena. Full environmental management system performance data required to enable management to make informed adjustments to the EMS. <p><i>Unique CEMP Elements</i></p> <ul style="list-style-type: none"> Benchmarking does not appear to be used routinely to calibrate performance and identify best practices. 		
Overall System Evaluation			

	Full Conformance		Substantial Conformance		Partial Conformance		Nominal Conformance		Non-existent
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1.0 INTRODUCTION

The Environmental Division (ILEV) in the office of The Air Force Civil Engineer is responsible for enhancing U.S. Air Force (AF) operational readiness by effectively managing and conserving environmental resources, ensuring compliance, and supporting global environmental stewardship. To meet this responsibility, ILEV is charged with establishing policy, program goals and guidance to fulfill its environmental leadership role, and to conduct oversight to evaluate AF progress in meeting program goals and priorities. A central component of ILEV's mission is to ensure Air Force installations meet the requirements of applicable Executive Orders (EOs) and incorporate them into future AF environmental compliance and pollution prevention programs.

The issuance of EO 13148, *Greening the Government through Leadership in Environmental Management* (April 2000), challenges the U.S. Air Force to advance the maturity and integration of its environmental management activities. EO 13148 states “through development and implementation of environmental management systems, each agency shall ensure that strategies are established to support environmental leadership programs, policies, and procedures and that agency senior level managers explicitly and actively endorse these strategies.” In light of this Executive Branch directive, ILEV initiated an internal working group to evaluate the current AF Environmental Program against the full set of EO 13148 requirements. Given the diversity of environmental management activities addressed by this EO, however, the assessment has been subdivided into separate concurrent reviews to promote optimal accuracy, consistency, and work efficiency.

This report has been specifically developed to address the EO 13148 requirement to perform an agency-level environmental management system (EMS) self-assessment based on the Code of Environmental Management Principles (CEMP) for Federal agencies and/or another appropriate EMS framework. A detailed examination of the purpose and objectives, scope, and methodology for this AF EMS review is provided in the following sections.

1.1 PURPOSE AND OBJECTIVES

In accordance with Section 401(a) of EO 13148, the purpose of this analysis is to evaluate how the current AF Environmental Program compares to the elements of a recognized EMS framework. Accordingly, this effort measures the AF environmental management program against the specifications identified in ISO 14001 *Environmental Management Systems – Specification with Guidance for Use* (1996) and the Environmental Protection Agency's *Code of Environmental Management Principles (CEMP)*, EPA 315-B-97-001, March 1997. The selection of these two EMS models—representing the most widely adopted international EMS standard and the environmental management framework developed for federal agencies—provides AF decision makers with a range of possible options for Service-wide implementation.

The purpose of this AF EMS self-assessment is supported by several key project objectives:

- Identify and review AF environmental policies, strategies, directives, and processes against the elements of both ISO 14001 and CEMP
- Identify areas of alignment and conformance with the elements of the two selected EMS models
- Ascertain possible contradictions or conflicts between AF environmental requirements and those identified in the selected EMS
- Identify the most appropriate EMS (or combination of systems) for potential Service-wide adoption based on the profile of AF conformance/nonconformance
- Support the development of a formalized implementation plan, as necessary, to facilitate EMS integration and roll-out.

1.2 SCOPE

The scope of this review encompasses the AF Environmental Program, including all applicable policies, directives, instructions, and processes. Given the breadth of AF mission activities and related policy and program infrastructure, the accuracy of the EMS review depends upon well-defined study boundary conditions in three areas: types of environmental impacts; scope of policies, procedures, and guidance; and applicable legal and regulatory requirements. The following table summarizes the boundary condition assumptions developed to guide and scope this EMS review.

AF EMS REVIEW STUDY BOUNDARIES

Boundary Condition	Within Scope of EMS Review	Outside Scope of EMS Review
Type of Environmental Impacts	<ul style="list-style-type: none">• Direct Impacts – all AF direct environmental impacts, both positive and negative• Indirect Impacts<ul style="list-style-type: none">– Tenant organizations on AF property– AF weapons systems contractors occupying GOCO facilities– AF purchases and influences on the supply chain as called for by EOs	<ul style="list-style-type: none">• AF weapon system contractors occupying contractor-owned, contractor operated (COCO) facilities
Current Environmental Policies, Procedures, and Guidance	<ul style="list-style-type: none">• All current environmental policies, procedures, and guidance• Pharmacies – environmental responsibilities as outlined in AFI 32-7086• Active ranges – compliance and natural/cultural resource requirements• CTT Range response	<ul style="list-style-type: none">• Policies, procedures, and guidance related to the occupational safety and health program• Bioenvironmental engineering activities involving safety and health issues (e.g., hearing conservation)• Range clearance activities
Legal and Regulatory Requirements	<ul style="list-style-type: none">• Applicable statutory requirements and regulatory standards• Specific EO-mandated reporting of energy management requirements (e.g., alternatively fueled vehicles and greenhouse gas reductions)	<ul style="list-style-type: none">• Occupational safety and health statutory obligations and regulatory standards• Energy Policy Act and related energy management initiatives not subject to Executive Order environmental reporting provisions.

1.3 Methodology

The methodology for conducting the AF EMS analysis consisted of four interrelated steps, as discussed below:

- Scoping – the ILEV working group, with participants from other AF organizations, developed and examined the appropriate scope of the study. Decisions regarding study boundaries were identified as assumptions to guide accurate and efficient project analyses.
- EMS Selection – based on the scope delineation, six different EMS models were evaluated for potential use as comparative references. Screening of the models for relevance and appropriateness enabled the selection of two systems, ISO 14001 and CEMP, for in-depth comparison against the existing AF Environmental Program.
- Comparative Assessment – all known environmental program documentation, such as previous EMS studies, AF Publication Directives (AFPDs) and AF Instructions (AFIs) (referenced in the attached documents list), were initially reviewed. Subsequently, AF environmental programs were compared to the specifications of ISO 14001 and the principles and supporting performance objectives of CEMP to identify areas of alignment and conformance. Where appropriate, consultations were conducted with AF officials to fully understand operational procedures and underlying business processes used to implement existing AF environmental programs.
- EMS Review Report Development – study results were initially documented in a draft report for review by AF officials. Comments received on the draft report were used to refine the accuracy and completeness of the EMS review and provide the direction for final report preparation.

2.0 ANALYSIS OF AIR FORCE ENVIRONMENTAL MANAGEMENT AGAINST ISO 14001

This section of the AF EMS Review describes the conformance and nonconformance of the AF Environmental Program relative to the specifications of the ISO 14001 standard. Appendix A of this report, AF EMS Review Matrix, provides the detailed data inputs for each element of the ISO 14001 standard used to support the analysis provided below.

2.1 ENVIRONMENTAL POLICY

ISO 14001 requires:

Top management shall define the organization's environmental policy and ensure that it

- a) is appropriate to the nature, scale and environmental impacts of its activities, products or services;*
- b) includes a commitment to continual improvement and prevention of pollution;*
- c) includes a commitment to comply with relevant environmental legislation and regulations, and with other requirements to which the organization subscribes;*
- d) provides the framework for setting and reviewing environmental objectives and targets;*
- e) is documented, implemented and maintained, and communicated to all employees;*
- f) is available to the public.*

AFPD 90-8, *Environmental, Safety and Occupational Health* (ESOH) establishes the AF ESOH Program, defines high-level policy, and states major program goals. AFPD 32-70 *Environmental Quality* (20 July 1994) sets forth policies to carry out the AF commitment of achieving and maintaining environmental quality through the division of four pillars: cleanup, compliance, conservation, and pollution prevention. Various Air Force Instructions that implement AFPD 32-70 address each of the four pillars in greater detail.

AFPD 32-70 *Environmental Quality* provides a macro level overview of Air Force environmental policy stating that the commitment to national environmental policy is the responsibility of Commanders at all levels and "all Air Force employees, including military, civilian, and contractor personnel, are accountable for the environmental consequences of their actions." Compliance to the directive is measured at each base through metrics and reported through the MAJCOM to the HQ USAF/ILEV as directed in AFI 32-7002, *Environmental Information Management System* (31 May 1994).

CONFORMANCE – AFPD 32-70 *Environmental Quality* defines the AF environmental policy and provides the necessary commitment to an EMS. The Air Force communicates policy requirements to all personnel through a publicly accessible Defense Environmental Network Information EXchange (DENIX) web site containing all policies, instructions, and manuals. The programmatic AFIs also contain requirements for Air Force personnel training, to ensure that all environmental policy requirements are adequately communicated and understood.

NONCONFORMANCE – The current AF environmental policy framework does not explicitly address the process for setting and reviewing environmental objectives and targets. Current AFPDs and AFIs limit discussion to previously established objectives but do not detail the overall AF approach for establishing the objectives and targets necessary for translating the environmental policy into tactical actions. Also, the DENIX web system (the vehicle used to provide updated information to the various installations) has no requirement to provide updates on current policies, instructions, and directives. It was noted during this review that a draft guide, *Installation Compliance Assurance and Pollution Prevention (CAPP) Guide* (December 2000), represents a possible objective and target setting framework for incorporation into the AF top-level environmental policy system.

In addition to the above considerations, there does not currently exist a concise EMS policy roadmap. This EMS “bridge” document is needed to describe the core elements and interactions of current AF environmental policy and guidance against each of the requisite elements of a formal EMS.

2.2 PLANNING

2.2.1 Environmental Aspects

ISO 14001 requires:

The organization shall establish and maintain (a) procedure(s) to identify the environmental aspects of its activities, products or services that it can control and over which it can be expected to have an influence, in order to determine those which have or can have significant impacts on the environment. The organization shall ensure that the aspects related to these significant impacts are considered in setting its environmental objectives.

The organization shall keep this information up-to-date.

The Air Force has no formal policy mechanism in place that establishes a procedure to identify the environmental aspects of its activities, products, and services, to the level required by ISO 14001. The Air Force requirement to define significant environmental impacts is limited specifically to the requirements of the AFCEE/CCR-D automated reporting system and the National Environmental Policy Act (NEPA).

CONFORMANCE – Section 4.3 of Draft AFI 32-7080 *Compliance Assurance and Pollution Prevention* (26 May 2000) directs cross-functional Hazardous Material Management Program (HMMP) teams at each installation to use existing sources of information to identify compliance sites/environmental aspects and develop a consolidated compliance site inventory. The compliance site inventory provides managers at all levels of the Air Force the ability to track progress in reducing compliance burden. Based on new major federal actions, AFI 32-7061, *The*

Environmental Impact Analysis Process (24 January 1995), provides instructions in how to comply with NEPA. It facilitates the identification of new or altered compliance sites resulting from new or changed activities or processes. In addition, Draft AFI 32-7080, *Compliance Assurance and Pollution Prevention*, requires that the HMMP team review new installation NEPA documents for changes to the compliance site inventory.

NONCONFORMANCE – AFI 32-7061 does not identify aspects based on activities, products, and services. It focuses specifically on compliance with NEPA. The aspects that are listed do not identify on-going activities, products or services and associated significant impacts as required in ISO 14001. There is no other discernable requirement contained within current AFIs to define other aspects or significant impacts beyond regulatory requirements associated with Air Force activities, products or services. This condition dilutes the full spectrum of environmental activities to be managed by AF operations and compromises the ability to systematically identify, quantify, or rank environmental impacts. Further, the significant environmental impacts are not linked to objectives and targets leading to overall program(s) in a coordinated systems approach. In reference to keeping this information up-to-date, no mechanism is currently in place.

2.2.2 Legal and Other Requirements

ISO 14001 requires:

The organization shall establish and maintain a procedure to identify and have access to legal and other requirements to which the organization subscribes, that are applicable to the environmental aspects of its activities, products or services.

CONFORMANCE – Every Air Force organization has access to legal support and works closely with Staff Judge Advocate General Counsel (USAF/JA) to ensure environmental compliance is maintained. As required in AFI 32-7005, *Environmental Protection Committees (EPCs)* (25 February 1994), representatives of USAF/JA are members of the EPC. Also, the Air Force complies with the requirements identified in AFI 32-7045, *Environmental Compliance Assessment and Management Program (ECAMP)* (1 July 1998) by providing updates to the ECAMP protocols on a continuing basis. The Air Force supplement is updated quarterly and the state supplements are updated at least annually. The commendable record of environmental regulatory compliance within the Air Force would suggest that the current systems work effectively even though procedures may not be clearly documented. Additionally, the Air Force Center for Environmental Excellence (AFCEE) has established Regional Environmental Offices (REOs) in Atlanta, Dallas, and San Francisco that provide access to legal requirements/interpretations for the installations and have points of contact to deal with the local and federal regulatory agencies on AF related issues.

NONCONFORMANCE – The AFCEE has developed two centralized listings of environmental policy (Environmental Governing Documents PRO-ACT Fact Sheet [October 1996 – TI#11275] and Environmental Authorities [1 July 1996]). However,

neither listing is up-to-date and one of them is not available on the Internet. No procedures have been outlined to provide for periodic review and update of these listings as required in ISO 14001. The process for disseminating this information is also not specified nor are the authority and responsibilities clearly communicated.

2.2.3 Objectives and Targets

ISO 14001 requires:

The organization shall establish and maintain documented environmental objectives and targets, at each relevant function and level within the organization.

When establishing and reviewing its objectives, an organization shall consider the legal and other requirements, its significant environmental aspects, its technological options and its financial, operational and business requirements, and the views of interested parties

The objectives and targets shall be consistent with the environmental policy, including the commitment to prevention of pollution.

CONFORMANCE – Chapter 3 of Draft AFI 32-7080, *Compliance Assurance and Pollution Prevention* (26 May 2000), sets the strategy, goals, and objectives for the AFCAPP program. The AF objectives for each environmental program area are contained in the various references outlined in this AFI.

NONCONFORMANCE – Within each function and level of the AF organization, the linkage between environmental aspects and significant impacts with objectives and targets has not been developed as specified in ISO 14001. Draft AFI 32-7080's references to objectives and goals are scattered throughout multiple documents making communication of employee roles and responsibilities in achieving these goals difficult.

2.2.4 Environmental Management Program(s)

ISO 14001 requires:

The organization shall establish and maintain (a) program(s) for achieving its objectives and targets. It shall include:

- a) designation of responsibility for achieving objectives and targets at each relevant function and level of the organization;*
- b) the means and time frame by which they are to be achieved.*

If a project relates to new developments and new or modified activities, products or services, program(s) shall be amended where relevant to ensure that environmental management applies to such projects.

Air Force objectives are primarily regulatory driven, and there is no direct linkage of significant aspects/impacts to the various other environmental programs. However, there are numerous environmental program areas outlined in Draft AFI 32-7080 *Compliance Assurance and Pollution Prevention* (26 May 2000). The development of the Air Force programs reflect the evolution of the media-specific regulatory environment; creating a complex array of autonomous Air Force programs based on top-down Air Force requirements.

CONFORMANCE – Sections 4.8 through 4.37 of Draft AFI 32-7080, *Compliance Assurance and Pollution Prevention*, designate responsibility for achieving objectives and targets at each relevant function and level within the Air Force. Existing environmental management programs at Air Force installations typically include the Hazardous Materials Pharmacy Program, Solid Waste Reduction Program, Hazardous Waste Reduction Program, Waste Recycling Program, Air Quality Program, Water Quality Program, Energy Conservation Program, and Environmental Compliance Assessment and Management Program (ECAMP).

NONCONFORMANCE – Draft AFI 32-7080 does not provide time frame for when stated objectives are to be achieved.

2.3 IMPLEMENTATION AND OPERATION

2.3.1 Structure and Responsibility

ISO 14001 requires:

Roles, responsibility and authorities shall be defined, documented and communicated in order to facilitate effective environmental management.

Management shall provide resources essential to the implementation and control of the environmental management system. Resources include human resources and specialized skills, technology and financial resources.

The organization's top management shall appoint (a) specific management representative(s) who, irrespective of other responsibilities, shall have defined roles, responsibilities and authority for:

- a) ensuring that environmental management system requirements are established implemented and maintained in accordance with this International Standard;*

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- b) *reporting on the performance of the environmental management system to top management for review and as a basis for improvement of the environmental management system.*

The Air Force program for defining roles and responsibilities in management of environmental quality begins with the establishment of cross-functional teams as designated in the Air Force Instructions. The installation level EPC, HMMP, and ECAMP Teams establish the conditions under which the implementation of higher level directives may be managed by all organizations at the installation including shop-level (non-environmental) personnel.

The implementation of a conforming ISO 14001 EMS presently takes a bottom up approach; implementing at the lowest organization level. Organizations and their employees are empowered to implement installation-specific quality processes and assume individual responsibility. Generally the organizational level is defined by installation, facility, building(s), or geographic location. Only one international company with multiple divisions and facilities has certified its EMS for all installations under a single certificate. With this one exception, all other organizations have chosen to individually certify each of their facilities.

CONFORMANCE – The Air Force program does a very good job in describing roles and responsibilities at the top and middle organizational/management levels within the Air Force. These roles and responsibilities are delegated in turn to the Headquarters, Wing, and installation level. Examples include installation programs such as the environmental manager program and training which select non-environmental personnel to participate in management of issues such as satellite accumulation point upkeep, spill response, identification of Environmental Impact Analysis Process issues, and HMMP responsibilities.

The responsibilities for planning, program management, budgeting and funding of environmental management rest primarily with the installation environmental flight, however, MAJCOM and Headquarters interactions provide stability across the Service while still allowing for installation-specific innovation and decision-making.

NONCONFORMANCE – The concept of a single installation-level responsible party or “management system representative,” which is an ISO 14001 requirement, is not used. However, the team interactions and division of authorities within the Air Force Environmental Program allow for identification of individual responsibilities.

2.3.2 Training, Awareness and Competence

ISO 14001 requires:

The organization shall identify training needs. It shall require that all personnel, whose work may create a significant impact upon the environment, have received appropriate training.

It shall establish and maintain procedures to make its employees or members at each relevant function and level aware of:

- a) the importance of conformance with the environmental policy and procedures and with the requirements of the environmental management system;*
- b) the significant environmental impacts, actual or potential, of their work activities and the environmental benefits of improved personal performance;*
- c) their roles and responsibilities in achieving conformance with the environmental policy and procedures and with the requirements of the environmental management system, including emergency preparedness and response requirements;*
- d) the potential consequences of departure from specified operating procedures.*

Personnel performing the tasks, which can cause significant environmental impacts, shall be competent on the basis of appropriate education, training and/or experience.

The requirement for training, awareness, and competence are long standing Air Force requirements and are specifically identified in AFIs. AF requirements follow regulatory guidelines for training. Training is provided in numerous avenues to environmental personnel and also those cross functional areas affected by environmental requirements, such as supply, legal, contracting, and medical.

CONFORMANCE – Training needs for personnel with environmental responsibilities are identified. The ECAMP Team/Program ensures identification of training disconnects and the potential consequences of departure from specified operating procedures.

NONCONFORMANCE – The Air Force written directives do not identify personnel at an operational level by job title whose job may create a significant environmental impact. The directives do, however, clearly identify the organizations within which personnel at operational levels work. Additionally, programs implemented throughout MAJCOMs and installations capture and implement the requirement to provide training to all levels with environmental responsibilities. These initiatives include symposium training, basewide or Command-wide training contracts, and in-house “brown-bag” training. Awareness and implementation training regarding the specific requirements of the AF EMS will be required to supplement existing environmental training initiatives.

2.3.3 Communication

ISO 14001 requires:

With regard to its environmental aspects and environmental management system, the organization shall establish and maintain procedures for

- a) internal communication between the various levels and functions of the organization;*

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- b) receiving, documenting and responding to relevant communication from external interested parties.*

The organization shall consider processes for external communication on its significant environmental aspects and record its decision.

The tone of the Air Force communication program is identified in the Public Affairs directorates and repeated throughout the environmental program as applicable.

CONFORMANCE – The Air Force management program provides for both internal and external communications to satisfy various regulatory and Air Force requirements as is evident in practice and defined in AFPD 35-1, Public Affairs Management. External communication or reporting is provided for all areas of environmental management in the current Air Force program through the implementation of the public affairs directives, Restoration Advisory Boards, public outreach for Earth Day, Arbor Day, and recycling initiatives and involvement in community activities which highlight the environmental mission. HQ AFCEE also maintains an Environmental Education and Training (EET) database that list all the environmental training required for each Air Force Specialty Code (AFSC) or job description. The draft AFI 32-7087 will require the EET database be used for environmental training requirements. Also, a process in place to respond to external regulatory parties includes the Environmental Incident Investigation Board process and notification channels established to respond to relevant communication.

NONCONFORMANCE – No specific departures from established ISO 14001 guidelines were noted during the review of the environmental communications specification.

2.3.4 Environmental Management System Documentation

ISO 14001 requires:

The organization shall establish and maintain information, in paper or electronic form, to:

- a) describe the core elements of the management system and their interaction;*
b) provide direction to related documentation.

The Air Force Environmental Program is formally documented, with each of the media-specific areas listed, and cross-referenced to other related programs.

CONFORMANCE – The management systems in place to track and identify ECAMP findings thoroughly describe the elements of the program and documentation reviewed during the process.

NONCONFORMANCE – The Air Force Environmental Program does not thoroughly identify the location of related environmental documentation. The ECAMP procedures could be improved to cross-reference the location and status of pertinent environmental documentation.

2.3.5 Document Control

ISO 14001 requires:

The organization shall establish and maintain procedures for controlling all documents required by this International Standard to ensure that:

- a) they can be located;*
- b) they are periodically reviewed, revised as necessary and approved for adequacy by authorized personnel;*
- c) the current versions of relevant documents are available at all locations where operations essential to the effective functioning of the environmental management system are performed;*
- d) obsolete documents are promptly removed from all points of issue and points of use, or otherwise assured against unintended use;*
- e) any obsolete documents retained for legal and/or knowledge preservation purposes are suitably identified.*

Documentation shall be legible, dated (with dates of revision) and readily identifiable, maintained in an orderly manner and retained for a specified period. Procedures and responsibilities shall be established and maintained concerning the creation and modification of the various types of document.

The Air Force Environmental Program of managing documentation follows Air Force wide principles of File Management and Disposition as directed within individual AFIs.

CONFORMANCE – Within the Air Force program, file plans maintenance and ECAMP evaluation ensures review and renewal of documentation. Inspector General inspections ensure location of documents and files disposition procedures help ensure that obsolete documentation is managed. ISO 14001 and Air Force requirements appear to have identical objectives to maintain and retrieve and records effectively. However, interviews from three pilot programs indicate this requirements has been difficult to implement due to resource constraints and priority allocations to compliance programs. Contracts are managed to receive electronic deliverables with dates and versions clearly identified.

NONCONFORMANCE – The Air Force program does not ensure material is dated or that current versions are identified by date outside of contracted documentation. For example, during the research for this analysis, it was discovered that on occasion, some of the referenced documents are unavailable on the Air Force Publications Internet site.

It is uncertain whether this is due to an oversight or whether the policy documents have been withdrawn or superseded. An example is AFI 32-7004 *Environmental Education Training*, which was referenced in AFI 32-7020 *The Environmental Restoration Program* (19 May 1994). The confusion created by this type of outdated reference or document unavailability causes the Air Force to achieve nonconformance status under the requirements of ISO 14001. It also represents less than optimal document control. The extended lag time required for updating instructions and directives is another example of nonconformance due to the four years needed to provide the Draft AFI 32-7080, *Compliance Assurance and Pollution Prevention*.

2.3.6 Operational Control

ISO 14001 requires:

The organization shall identify those operations and activities that are associated with the identified significant environmental aspects in line with its policy, objectives and targets. The organization shall plan these activities, including maintenance, in order to ensure that they are carried out under specified conditions by:

- a) establishing and maintaining documented procedures to cover situations where their absence could lead to deviations from the environmental policy and the objectives and targets;*
- b) stipulating operating criteria in the procedures;*
- c) establishing and maintaining procedures related to the identifiable significant environmental aspects of goods and services used by the organization and communicating relevant procedures and requirements to suppliers and contractors.*

CONFORMANCE – The Air Force Weapon System Hazardous Material Reduction Prioritization Process (HMRPP) is designed to integrate weapon system requirements identification, prioritization, funding and execution processes. Sustainable building practices are pursued during the design phase of facility maintenance, repair, and construction projects. Both the Department of Defense and the Air Force are committed to “closing the recycling loop” by purchasing products made with recycled materials. Policy and guidance have been developed to assist personnel with implementation of Federal affirmative procurement guidelines.

NONCONFORMANCE – Communicating relevant procedure and requirements to suppliers and contractors is encouraged. However, upward reporting of affirmative procurement requirements has not yet been developed. This makes it difficult to verify progress and determine that implementation is being accomplished successfully. Also, a potential disconnect exists between the execution of the HMRPP and normal processes used to meet weapon system requirements. These issues were outlined in a December 2000, Deputy Under Secretary of Defense (Environmental Security) “ESOH Acquisition Workshop II.” The findings include recommendations to: foster better ESOH requirements identification, improve ESOH expertise support for weapon system

program development, improve review of ESOH issues in DoD component acquisition review process, and make weapon systems ESOH consideration an essential part of technology development.

2.3.7 Emergency Preparedness and Response

ISO 14001 requires:

The organization shall establish and maintain procedures to identify potential for and respond to accidents and emergency situations, and for preventing and mitigating the environmental impacts that may be associated with them.

The organization shall review and revise, where necessary, its emergency preparedness and response procedures, in particular, after the occurrence of accidents or emergency situations.

The organization shall also periodically test such procedures where practicable.

The programs established for the Air Force system must respond to potential emergencies or accidents as defined by various states as well as federal regulations. These plans include responding to environmental emergencies such as hazardous material spills.

CONFORMANCE – The Air Force readiness thoroughly addresses emergency preparedness and response as a regulatory requirement and provides for periodic evaluation of spill response procedures, control and countermeasures plans, facility response plans, and storm-water pollution prevention plans.

NONCONFORMANCE – No specific departures from established ISO 14001 guidelines were noted during the review of the emergency preparedness and response specification.

2.4 CHECKING AND CORRECTIVE ACTION

2.4.1 Monitoring and Measurement

ISO 14001 requires:

The organization shall establish and maintain documented procedures to monitor and measure, on a regular basis, the key characteristics of its operations and activities that can have a significant impact on the environment. This shall include the recording of information to track performance, relevant operational controls and conformance with the organization's environmental objectives and targets.

Monitoring equipment shall be calibrated and maintained and records of this process shall be retained according to the organization's procedures.

The organization shall establish and maintain a documented procedure for periodically evaluating compliance with relevant environmental legislation and regulations

CONFORMANCE – The ECAMP is a central AF performance measurement system established under AFI 32-7045, *Environmental Compliance Assessment and Management Program (ECAMP)* (1 July 1998). This AFI provides advanced audit procedures to monitor and evaluate compliance performance. Draft AFI 32-7080, *Compliance Assurance and Pollution Prevention* (26 May 2000), identifies a full suite of checking tools applicable to the AF Environmental Program, encompassing AF Inspection Agency audits, AF Audit Agency reviews, Program Management reviews, and pollution preventing reporting.

Draft AFI 32-7080 also addresses monitoring requirements in Chapter 4. The Code of Federal Regulations addresses calibration of equipment in laboratories and for environmental sampling (e.g., 40 CFR 61 Appendix B Test Methods – Calibration of Standards). AFI 32-7045, *Environmental Compliance Assessment and Management Program (ECAMP)* (1 July 1998), documents the ECAMP audit procedures. As a result of this requirement, the Air Force does practice calibration in each program area according to the CFR requirements. Additionally, the individual MAJCOMs establish and implement goals and measurement procedures. Also, although not consistent throughout the Air Force, the various MAJCOMs do establish and implement Measures of Merit (MOMs) according to their environmental responsibilities and the Deputy Under Secretary of Defense for Environmental Security (DUSD[ES]) and the Air Force have MOMs that are sent out as Policy Memorandums

NONCONFORMANCE – Specific environmental performance metrics or MOMs are neither noted nor quantified in Draft AFI 32-7080 *Compliance Assurance and Pollution Prevention*. Draft AFI 32-7080, *Compliance Assurance and Pollution Prevention*, does not address calibration of monitoring equipment or records retention of this process. The requirements for calibration exist in various CFRs but they are neither contained nor specifically referenced in Draft AFI 32-7080, AFI 32-7040 *Air Quality Compliance* (9 May 1994), or AFI 32-7041 *Water Quality Compliance* (13 May 1994).

2.4.2 Nonconformance and Corrective and Preventive Action

ISO 14001 requires:

The organization shall establish and maintain procedures for defining responsibility and authority for handling and investigating nonconformance, taking action to mitigate any impacts caused and for initiating and completing corrective and preventive action.

Any corrective or preventive action taken to eliminate the causes of actual and potential nonconformances shall be appropriate to the magnitude of problems and commensurate with the environmental impact encountered.

The organization shall implement and record any changes in the documented procedures resulting from corrective and preventive action.

Prevention is a basic precept of ISO 14001. It requires proactive measures be taken (stated in the guideline documentation) to provide consistency across the organization. This holds true for the EMS as well as for its constituent parts.

CONFORMANCE – AFD 32-70, *Environmental Quality* (20 July 1994) designates commanders at all levels as responsible for full compliance with national and Air Force environmental policy and states that all Air Force employees are accountable for the environmental consequences of their actions. Noncompliance ECAMP findings are handled via reporting to the EPC which acts as the primary executive steering group for compliance.

NONCONFORMANCE – Draft AFI 32-7080, *Compliance Assurance and Pollution Prevention* (26 May 2000), does not specifically address preventive action for the environmental management system as required in ISO 14001. It does state (in Section 5.3.2) that pollution prevention is the preferred solution to any identified ECAMP compliance findings. However, a statement documenting a requirement to use preventive action as the primary approach would be more in keeping with the spirit of ISO 14001.

2.4.3 Records

ISO 14001 requires:

The organization shall establish and maintain procedures for the identification, maintenance and disposition of environmental records. These records shall include training records and the results of audits and reviews.

Environmental records shall be legible, identifiable and traceable to the activity, product or service involved. Environmental records shall be stored and maintained in such a way that they are readily retrievable and protected against damage, deterioration or loss. Their retention times shall be established and recorded.

Records shall be maintained, as appropriate to the system and to the organization, to demonstrate conformance to the requirements of this International Standard.

ISO 14001 only specifically identifies training records and results of audits and reviews as environmental records. The organization must identify what it considers environmental records in general and those which are necessary to demonstrate conformance to the requirements of the standard. ECAMP audits, NEPA documents, Environmental Impact Statements, and regulatory permits and correspondence are examples of environmental records.

CONFORMANCE – AFI 32-7002, *Environmental Information Management System* (31 May 1994), AFMAN 37-123, *Management of Records* (31 August 1994), AFI 33-322, *Records Management Program* (1 December 1998), and AFI 37-138, *Records Disposition – Procedures and Responsibilities* (31 March 1994) fulfill the intent of this requirement.

NONCONFORMANCE – Draft AFI 32-7080 *Compliance Assurance and Pollution Prevention* (26 May 2000) does not specify record management procedures except where regulations specify record retention periods. Implied in the AFI is the proper care and storage of records. However, the implementation of this required element could not be confirmed and it is uncertain whether all installation environmental records are copied and stored at off-site locations to prevent accidental destruction, theft, or loss.

2.4.4 Environmental Management System Audit

ISO 14001 requires:

The organization shall establish and maintain (a) program(s) and procedures for periodic environmental management system audits to be carried out, in order to

- a) determine whether or not the environmental management system*
 - 1) conforms to planned arrangements for environmental management including the requirements of this International Standard; and*
 - 2) has been properly implemented and maintained; and*
- b) provide information on the results of audits to management.*

The organization's audit program, including any schedule, shall be based on the environmental importance of the activity concerned and the results of previous audits. In order to be comprehensive, the audit procedures shall cover the audit scope, frequency and methodologies, as well as the responsibilities and requirements for conducting audits and reporting results.

The Air Force requires periodic compliance audits. However, there is no apparent requirement to perform a self audit to evaluate the entire program as required under ISO 14001 EMS. There are seventeen major elements within a conforming ISO 14001 EMS; each element must be periodically validated to assure the overall effectiveness of the management system.

CONFORMANCE – Under specific waivers of sovereign immunity within individual environmental statutes (e.g., Federal Facilities Compliance Act, Section 118 of the Clean Air Act) the Air Force is subject to fines and penalties, corrective action orders, and various multi-media inspections from federal and state regulatory audits. Some examples

of regulatory compliance audits include compliance evaluation inspections under the Clean Water Act, Resource Conservation and Recovery Act, and Clean Air Act. In addition, EPA has embarked on a multiyear compliance auditing initiative focused on federal facilities, with particular emphasis on multi-media review of Department of Defense installations. The results of these and other environmental audits are immediately elevated to the MAJCOMs and the Air Staff. However, the listed audits are not self audits that evaluate the system.

NONCONFORMANCE – AFI 32-7045, *Environmental Compliance Assessment and Management Program (ECAMP)* (1 July 1998) provides for annual ECAMP audits without regulator involvement. Unfortunately, ECAMP audits and reviews of compliance performance do not completely ensure requirements are being followed from a management system perspective. There is no identifiable requirement for a management system review, with the exception of the management reviews required for CAPP programs in Draft AFI 32-7080. A formal EMS audit procedure, schedule, audit scope, frequency and methodologies, as well as the responsibilities and requirements for conducting audits and reporting results does not exist.

2.5 MANAGEMENT REVIEW

ISO 14001 requires:

The organization's top management shall, at intervals that it determines, review the environmental management system, to ensure its continuing suitability, adequacy and effectiveness. The management review process shall ensure that the necessary information is collected to allow management to carry out this evaluation. This review shall be documented.

The management review shall address the possible need for changes to policy, objectives and other elements of the environmental management system, in the light of environmental management system audit results, changing circumstances and the commitment to continual improvement.

CONFORMANCE – A formal process of management review of the EMS is not well defined in Air Force policy directives or instructions. However, management review does occur through the Environmental Protection Committees (EPCs) (and the ESOHCs) as established under AFI 32-7005 *Environmental Protection Committees* (25 February 1994). The EPC or ESOHC provides an appropriate group to perform the EMS management review. The makeup of this group covers a wide range of Air Force activities and tenant organizations at the installation level. EPCs and ESOHCs are established at HQ, MAJCOM, and installation levels. The roles of these groups could be adapted slightly to perform the management review functions identified in ISO 14001.

AFI 32-7045 *Environmental Compliance Assessment and Management Program* (1 July 1998) hints at a data collection process to support the management review, but does not adequately define that process. The *Environmental Management Self-Assessment* could

provide the basis for this data collection, allowing management to fully evaluate the EMS. Results of an EMS audit or self-assessment are required before management can justifiably address the need for changes to policy, objectives and other EMS elements. The AFI states that the MAJCOM “may require periodic management self-assessments.” This requirement should be strengthened to make the self-assessments mandatory. A timeframe should also be included.

NONCONFORMANCE – Current Air Force policies do not appear to stipulate requirements for fully documenting the results of the *Environmental Management Self-Assessment* process or the particular communication channels for reporting performance data. The compilation and distribution of EPC meeting minutes could provide some measure of conformance with the ISO requirement to document the management review.

The data collection for the EMS review is not well defined, focusing on regulatory compliance issues surfaced through the ECAMP audits. It does not consider the wider environmental aspects and impacts that are managed under the EMS. A potential remedy could be to adapt the current MOMs to focus on the EMS rather than compliance with laws and regulations. Improvements in the management review phase would help integrate the AF EMS and promote its use as a proactive system for effectively managing environmental risks.

3.0 ANALYSIS OF AIR FORCE ENVIRONMENTAL MANAGEMENT AGAINST THE CODE OF ENVIRONMENTAL MANAGEMENT PRINCIPLES

The scope of the Air Force EMS review included a requirement to analyze Air Force environmental management systems against the EPA's Code of Environmental Management Principles (CEMP). This chapter presents the results of that analysis.

Many of the principles and underlying performance objectives that are outlined in CEMP, closely follow the requirements of ISO 14001. The following table illustrates the similarities between CEMP and ISO 14001. It provides a visual crosswalk of the components of the two management systems.

CROSSWALK OF ISO 14001 AND CEMP ELEMENTS

EMS MODEL CHARACTERISTICS	ISO 14001	CEMP
<i>PLANNING ELEMENTS</i>		
I. TOP MANAGEMENT COMMITMENT AND SUPPORT		
A. Environmental Policy Statement	✓ 4.2	✓ 1.1
B. Visible Involvement in Environmental Programs	✓ 4.2 & 4.6	✓ 1.1
C. Environmental Stewardship and Sustainable Development	✓ 4.2 (implicit)	✓ 1.2
II. STRATEGY, POLICY, AND GOALS		
A. Environmental Strategies and Policies	✓ 4.3	✓ 3.2
B. Goals, Objectives, and Targets	✓ 4.3	✓ 3.2
III. PLANNING AND DECISION MAKING PROCESSES		
A. Resource Planning (Budgetary and Personnel)	✓ 4.4.1	✓ 1.1.2
B. Project Reviews and Requirements Integration	✓ 4.3	✓ 1.1.2
<i>ORGANIZING ELEMENTS</i>		
IV. PROCEDURES, PROGRAMS, AND ACTION PLANNING		
A. ENVIRONMENTAL Compliance Assurance Procedures and Programs	✓ 4.3.4 & 4.4.6	✓ 2.1
B. Pollution Prevention Procedures and Programs	-	✓ 2.3
C. Action Planning	✓ 4.3.4	✓ 1.1.2
V. ENVIRONMENTAL ORGANIZATIONAL STRUCTURE AND RESPONSIBILITIES		
A. Staffing	✓ 4.4.1	✓ 1.1

EMS MODEL CHARACTERISTICS	ISO 14001	CEMP
B. Responsibilities, Authorities, and Accountabilities	✓ 4.4.1	✓ 4.1
IMPLEMENTATION ELEMENTS		
VI. TRAINING, AWARENESS, AND COMPETENCE		
A. Training Needs Assessments	✓ 4.4.2	-
B. Environmental Training and Awareness Programs	✓ 4.4.2	✓ 3.1
C. Personnel Qualifications and Competencies	✓ 4.4.2	✓ 3.2
D. Reward and Recognition Programs	-	✓ 4.2
VIII. INFORMATION MANAGEMENT SYSTEMS		
A. Communications	✓ 4.4.3	✓ 1.1 & 3.3
B. Document Management	✓ 4.4.4-.5 & 4.5.3	✓ 3.2 & 3.3
C. Reporting	✓ 4.4.4-.5 & 4.5.3	✓ 3.2 & 3.3
IX. EMERGENCY PREPAREDNESS AND RESPONSE	✓ 4.4.7	✓ 2.2
CONTROLLING/MEASURING	4.5.1 (Implicit)	✓ 4.2
X. PERFORMANCE MEASURES AND STANDARDS		
XI. INSPECTION AND VERIFICATION SYSTEMS		
A. Equipment and Operational Inspections	✓ 4.5.1	✓ 5.1
B. Verification Systems (Pollutant Characterization, Self Assessments)	✓ 4.5.2 & 4.5.4	✓ 5.1
C. Corrective and Preventive Action	✓ 4.5.2	✓ 5.1
XII. RISK/TREND ANALYSIS		
A. Regulatory Tracking	✓ 4.3.2	✓ 2.1
B. Risk Assessment/Trends Analysis	✓ 4.5.1	✓ 5.1 & 5.2
C. Programmatic Assessment and Continuous Improvement	✓ 4.6	✓ 5.2

Because the two management systems have similar requirements and to avoid unnecessary duplication, this analysis focuses on the elements of CEMP that are distinct and additional to the elements of ISO 14001. Appendix A, Air Force EMS Review Matrix, presents a detailed account of the data inputs gathered for EMS elements that are common to both systems, as well as those unique to CEMP.

3.1 MANAGEMENT COMMITMENT

Principle 1

The agency makes a written top-management commitment to improved environmental performance by establishing policies, which emphasize pollution prevention and the need to ensure compliance with environmental requirements.

Principle 1.1.2 System Integration

The agency integrates the environmental management system throughout its operations, including its funding and staffing requirements, and reaches out to other organizations.

Principle 1.2 Environmental Stewardship:

The agency strives to facilitate a culture of environmental stewardship and sustainable development.

CONFORMANCE – The Air Force meets the requirements of Principle 1 by emphasizing its commitment to full regulatory compliance and pollution prevention in AFD 32-70 *Environmental Quality*. AFD 32-70 states that the Air Force will meet all environmental standards applicable to its present operations and conduct its activities according to national environmental policy. AFD 32-70 also establishes the Pollution Prevention Program and states that the Air Force will eliminate pollution from its activities wherever possible. AFD 32-70 meets the requirements of Principle 1.1.2 because it establishes environmental authority throughout the Air Force and its organizational and personnel structure. The environmental program is established throughout the Air Force, but in practice, environmental responsibility may not be fully devolved outside of the environmental shop. Environmental stewardship and sustainable facilities are addressed in AFD 32-70 and Draft AFI 32-7080 *Compliance Assurance and Pollution Prevention*.

NONCONFORMANCE – The Air Force does not currently have a formal policy to address the outreach element of Principle 1.1.2.

3.2 COMPLIANCE ASSURANCE AND POLLUTION PREVENTION

Principle 2.1 Compliance Assurance and 2.3 Pollution Prevention and Resource Conservation

These principles require the organization to ensure that compliance assurance and pollution prevention plans and goals are established.

Principle 2.3 Pollution Prevention and Resource Conservation

Pollution prevention is established as a program with supporting procedures.

CONFORMANCE – The Air Force Pollution Prevention Program is established under AFPD 32-70 *Environmental Quality* and it is fully delineated with supporting procedures under Draft AFI 32-7080 *Compliance Assurance and Pollution Prevention*. Goals and planning requirements for compliance and pollution prevention are also described under draft AFI 32-7080.

NONCONFORMANCE – No specific departures from established CEMP guidelines were noted during the review of compliance assurance and pollution prevention.

3.3 PERFORMANCE AND ACCOUNTABILITY

Principle 4.1 Responsibility, Authority and Accountability

Environmental program responsibilities also must have defined accountabilities.

Principle 4.2 Performance Standards

A formal reward and recognition system has been instituted for environmental achievements.

Principle 4.2 Performance Standards

This principle requires that formal performance measures and standards be established for environmental program performance monitoring.

CONFORMANCE – Section 4B of Draft AFI 32-7080 provides environmental program responsibilities with defined accountabilities for Compliance Assurance and Pollution Prevention.

Several formal reward and recognition systems have been instituted for environmental achievements. Using the Air Force Form 1000, individuals may be eligible for monetary and recognition awards for environmental achievements resulting in cost savings. Another formal reward program includes the annual General Thomas D. White Environmental Awards. Both of these awards are given to installations and individuals in a number of categories covering the Air Force Environmental Program.

NONCONFORMANCE – Although performance metrics (e.g., MOMs) have been defined for selected program areas, a systematic process is not in place to formulate performance measures on a continuing basis in response to individual environmental objectives and targets. The closest approximation to a formal AF performance measure development process is contained within Chapter 2 of the Draft *Installation CAPP Guide* (December 2000).

3.4 MEASUREMENT AND IMPROVEMENT

Principle 5.1.2 Institute Benchmarking

Organizations should use benchmarking as a means of fostering continuous program improvement.

CONFORMANCE – Evidence exists at the installation level that suggests the use of benchmarking on a case-specific or ad hoc basis to evaluate program performance.

NONCONFORMANCE – AF policy does not appear to currently require the use of benchmarking as a means of fostering continuous program improvement during management reviews.

4.0 FINDINGS

The Air Force Environmental Management Program was found to substantially conform to ISO 14001 and appears to fully address the major provisions of the EPA CEMP model. The program is generally well defined and outlined through policy and programmatic documentation. However, the approach to environmental management is one of splitting the program into four pillars: compliance, pollution prevention, conservation, and restoration. In addition, Air Force environmental management is also split into media-specific programs. This leads to a degree of fragmentation in the implementation of the environmental program and denies the greater level of efficiency and effectiveness that could be gained through operating a comprehensive environmental management system. The critical areas of nonconformance are highlighted below.

4.1 MAJOR FINDINGS

ISO 14001

Commitment and Policy

ISO 14001 requires the organization's top-level environmental policy to establish the mechanism for setting and reviewing environmental program objectives and targets. This framework is essential to EMS planning and ensures a formal process is established to articulate environmental performance expectations throughout the organization. The Air Force policy under AFPD 32-70 *Environmental Quality* does not address this requirement. In addition, no overarching EMS policy statement clearly delineates the core elements and linkages between the EMS elements outlined in the various AFIs and other policy and guidance documents. Such a concise "primer" on the AF EMS not only provides an essential roadmap to applicable policy and guidance but also serves as an important communication tool for EMS awareness and implementation training.

Planning - Environmental Aspects and Impacts

A Service-wide, consolidated procedure (or modification of existing procedures) needs to be adopted for systematically identifying environmental aspects and impacts based on AF activities, products and services. Currently, AFI 32-7061 *Environmental Impact Analysis Process* focuses solely on NEPA compliance. Draft AFI 32-7080, *Compliance Assurance and Pollution Prevention* (and the supporting Draft *Installation CAPP Guide*) provides a closer alignment with ISO 14001 planning procedures. An important shortcoming, however, is that Draft AFI 32-7080's compliance site inventory process limits aspect analysis to regulatory standards in conventional media compliance programs. This condition may not facilitate determining the full range of aspects and significant potential impacts of activities, products, and services across AF core mission organizations. The environmental aspect analysis procedure should include provisions to thoroughly identify and rank applicable environmental impacts to determine those of greatest significance. Significant potential environmental impacts should be explicitly linked to the establishment of objectives, targets, and performance measures to ensure coordinated and effective program execution.

Environmental Management System Auditing Procedures

The third major area where the Air Force does not conform to ISO 14001 is in the development and implementation of an EMS auditing program. The current ECAMP process is very effective at identifying compliance findings but it is not intended to be an EMS auditing tool, according to the ISO 14001 definition. The Environmental Management Self-Assessment process introduced as an addition to ECAMP does not appear to be well defined. Deficiencies in the EMS auditing arena create problems for the management review element of the EMS because of inadequate data input for senior managers to accurately assess EMS performance, determine the need for adjustments, and create the basis for continuous improvement. [Note: See related finding below.]

4.2 OTHER FINDINGS

ISO 14001

Process for Updating Applicable Legal Requirements

Existing listings of applicable environmental standards and policy available through AFCEE are not up-to-date and one such listing does not support Internet access. Other local or commercially available mechanisms are available but may introduce inconsistencies in use and application at individual installations. The DENIX web system is the vehicle used to provide updated information on current policies, instructions, and directives to the various installations. Although it has no requirement to provide timely updates, the Air Force has historically performed fairly well in posting the legal requirements. However, the Air Force needs to establish a formal process that identifies, tracks, and disseminates updates to applicable legal environmental standards.

Document Control Systems

The current document control infrastructure established by AF policies and instructions (e.g., AFMAN 37 series) provides a comprehensive general framework for records management and disposition. In addition, media-specific AFIs establish requirements for records maintenance to ensure compliance with applicable environmental regulatory standards. To supplement these existing processes, existing AF document control policies and procedures need to be reviewed for consistency with the specifications of the ISO 14001 EMS (i.e., Specifications 4.4.4, 4.4.5, and 4.5.3). Areas central to this review and potential modification include:

- Procedures for identifying, disseminating/locating, and controlling all documents required by the EMS (including training, compliance, and EMS audit results)
- Procedures for maintaining EMS documentation in a dated and current version format (with dates of revision), well-organized and retrievable, and retained for the period dictated by the EMS

-
- Special precautions for maintaining EMS records that need to be protected against damage, deterioration, or loss.

Revisions determined to be necessary for EMS conformance from review of the considerations above should be incorporated into the overarching AFMAN document control framework. Additionally, appropriate flow-down linkages should be established between the AFMAN 37 series and media-specific AFIs to promote consistent treatment of EMS documentation and records.

Management Review

Management review of AF environmental activities is primarily driven by the requirements of AFD 90-1, AFD 32-70, and AFI 32-7005. In particular, AFI 32-7005, *Environmental Protection Committees* provides for broad involvement across the AF organization to ensure thorough consideration of environmental issues. Full conformance to the ISO 14001 specification for management review will require revision to AFI 32-7005 to address the following EMS management review process elements:

- Expansion of the data inputs for the management review to encompass EMS performance considerations that transcend compliance-oriented audit results
- Protocols that stipulate the required intervals for management review (AFD 90-1 specifies a biennial review whereas Draft AFI 32-7080 does not define the frequencies for CAPP reviews)
- Formal procedures for incorporating management review feedback into the continuing advancement of the EMS, including upward and downward reporting. These inputs should be used to gauge and recalibrate the EMS, as necessary, to achieve the desired goals of AF environmental policy.

CEMP

Outreach Policies

AF top-level environmental policy contains implicit references to communicating with internal and external stakeholders, including local communities and response officials. Further, environmental restoration communication forums, such as the Restoration Advisory Boards (RABs), provide a mechanism for public outreach on environmental cleanup and related issues. As a supplement to these existing efforts, AF should incorporate into its overarching ESOH and environmental policy the mechanisms to be used for communicating its environmental activities to the public and neighboring communities.

Performance Measures and Standards (CEMP and ISO 14001)

Explicit performance measures, quantifiable where possible, should be developed to monitor program performance and stimulate ongoing advancement of the AF Environmental Program. These performance measures should cascade directly from

established environmental goals and objectives designed to institutionalize the environmental policy. The procedure for establishing performance measures should be dynamic in nature and provide for periodic recalibration to maintain consistency with new goals and objectives as the EMS matures. Review of AF environmental policy and guidance available at the time of draft report preparation suggests that the process described in Chapter 2 of the Draft *Installation CAPP Guide* best aligns with a CEMP or ISO 14001 process for performance measure formulation.

Benchmarking

The CEMP element for continuous improvement places emphasis on the use of various techniques to stimulate responsible environmental management. In particular, CEMP identifies the use of benchmarking—the process by which an organization compares itself to industry or government leaders to evaluate performance and gain beneficial experience from other peak performers. As a recognized industry best practice, AF may want to consider incorporating a benchmarking process as a supplementary measure within the management review function.

APPENDIX A

Air Force EMS Review Matrix

This EMS Review Matrix is based the ISO 14001 construct, but it also includes the principles and related performance objectives defined under CEMP. Each EMS element in the matrix is referenced as being either ISO 14001 specific, CEMP specific, or covered by both ISO 14001 and CEMP.

EMS Element	Air Force References	Comments
POLICY		
Top management shall define the organization's environmental policy. <i>(ISO Element 4.2, CEMP Principle 1)</i>	AFPD 90-8 Environment, Safety, and Occupational Health (1 January 1999) AFPD 32-70 , Environmental Quality (20 July 1994) HQ USAF Policy Letter	Establishes the ESOH program and states its goals. Defines high level policy. Air Force commits to achieving compliance through pollution prevention (CTP2) and to achieving continuous improvement in environmental and mission performance. Established Compliance Through Pollution Prevention Guidance.
The policy must address and emphasize full regulatory compliance, pollution prevention and should address environmental stewardship. <i>(CEMP Principle 1)</i>	AFPD 32-70 , Environmental Quality (20 July 94) Sections 1 and 2 Draft AFI 32-7080 Compliance Assurance and Pollution Prevention (26 May 2000) – Section 4.3	States that the Air Force will meet all environmental standards applicable to its present operations, eliminate pollution from its activities wherever possible, and responsibly manage natural and cultural resources it holds in the public interest. “The Air Force will conduct its activities according to national environmental policy.” Requires a Compliance Site Inventory to be compiled for every installation.
The policy is appropriate to the nature, scale and environmental impacts of its activities, products, or services, and <i>(ISO Element 4.2, CEMP Performance Objective 1.1)</i>	AFPD 32-70 , Environmental Quality (20 July 1994)	Establishes the USAF commitment to achieving and maintaining environmental quality by addressing environmental damage due to past activities, meeting and assessing current compliance via measures of compliance and eliminating pollution from current and future activities wherever possible.

EMS Element	Air Force References	Comments
includes a commitment to continual improvement and prevention of pollution; <i>(ISO Element 4.2, CEMP Performance Objective 1.1)</i>	Draft AFI 32-7080, Compliance Assurance and Pollution Prevention (26 May 2000) AFPD 32-70 Environmental Quality (20 July 1994) - Section 3.4 Pollution Prevention	Air Force commits to achieving compliance through pollution prevention (CTP2) and to achieving continuous improvement in environmental and mission performance. Air Force commits to prevent future pollution by reducing use of hazardous materials and releases of pollutants into the environment to as near zero as feasible.
includes a commitment to comply with relevant environmental legislation and regulations, and with other requirements to which the organization subscribes; <i>(ISO Element 4.2, CEMP Principle 1)</i>	AFPD 32-70 Environmental Quality (20 July 1994) – Sections 1 and 2	Air Force commits to conduct its activities according to national environmental policy. It commits to comply with all environmental standards applicable to its present operations and plan to minimize environmental impacts to future activities.
provides the framework for setting and reviewing environmental objectives and targets <i>(ISO Element 4.2)</i>	AFPD 32-70 Environmental Quality (20 July 1994) AFI 32-7045 Environmental Compliance Assessment and Management Program (ECAMP) (1 July 1998) DRAFT AFI 32-7080 Compliance Assurance and Pollution Prevention (26 May 2000) Section 4.25.9	Outlines measures of compliance to be conducted at each base to measure Cleanup; Environmental Compliance; Conservation; and Pollution Prevention. Compliance of Federal, state, local, DoD, and Air Force policies and instructions are measured through comprehensive environmental compliance assessments and management action plans. MAJCOM and Direct Reporting Unit (DRU) Environmental Protection Committee (EPCs) are to develop annual pollution prevention goals for MAJCOMs.

EMS Element	Air Force References	Comments
<p>is documented, implemented and maintained and communicated to all employees;</p> <p><i>(ISO Element 4.2, CEMP Principle 1)</i></p>	<p>AFI 32-7005, Environmental Protection Committees (25 Feb 94) - Section B, Paragraph 4.1 and 4.2.</p>	<p>Requires EPCs to act as the primary executive steering group for all environmental cleanup, compliance, conservation and pollution prevention. To facilitate, HQ USAF EPCs “meet at least semi-annually or at the direction of the chairperson to review adequacy of policies, resources and performance in meeting environmental goals and make recommendations on changes required.”</p>
	<p>AFI 32-7005, Environmental Protection Committees (25 Feb 94) - Section B, Paragraph 4.3. MAJCOM and Installation EPCs</p>	<p>Requires that MAJCOM and Installation EPCs “ensure appropriate training and manpower exist to meet environmental responsibilities.”</p>
	<p>DRAFT AFI 32-7080 Compliance Assurance and Pollution Prevention (26 May 2000) Section 4.30.2</p>	<p>States that Unit Environmental Coordinators “coordinate required unit environmental training.”</p>
	<p>AFI 32-7005, Environmental Protection Committees (25 Feb 94) - Section B, Paragraph 5. Preparing Minutes and Paragraph 5.4</p>	<p>Requires the meeting secretary to prepare minutes of the EPC meeting within 30 days of convening. The minutes are sent to the higher headquarters EPCs, appropriate Air Force Regional Compliance Offices, and other interested parties.</p>
	<p>AFOSH Standard 48-8 Controlling Exposures to Hazardous Materials (1 September 1997)</p>	<p>Requires training programs to be established for all employees exposed to hazardous materials. This helps communicate policy requirements in both the environmental and health and safety areas.</p>
<p>is available to the public.</p> <p><i>(ISO Element 4.2, CEMP Principle 1)</i></p>	<p>http://afpubs.hq.af.mil/afpubs.stm</p>	<p>The Air Force Publishing Office provides public access to AFIs, AFPs, AFMs, and Air Force Supplements to DoD Publications.</p>

EMS Element	Air Force References	Comments
Management commits to and embraces measures to promote the integration of the environmental program throughout the organization. A formal policy statement regarding systems integration and outreach to the public on environmental management activities supports achievement of this objective. (CEMP Performance Objective 1.1.2)	AFPD 32-70 , Environmental Quality (20 July 94) Section 2	“Commanders at all levels are responsible for full compliance with national and Air Force environmental policy. All Air Force employees, including military, civilian, and contractor personnel are accountable for the environmental consequences of their actions.”
The agency should demonstrate commitment to, and supporting initiatives, to promote environmental stewardship and sustainable development. (CEMP Performance Objective 1.2)	AFPD 32-70 , Environmental Quality (20 July 94) Section 3.3 Conservation AFPD 90-8 Environment, Safety, and Occupational Health (1 January 1999)	“The environmental resources under Air Force stewardship will be protected and managed in the public interest.” USAF will integrate environmental opportunities and constraints in the planning for installation development. Establishing the Air Force ESOH Program, this directive prescribes the sustainable use of installations and ranges through the conservation of natural and cultural resources and open communication with stakeholders to reduce the ESOH component of installation and weapons system total ownership costs.
PLANNING		
Environmental Aspects		
The organization shall establish and maintain (a) procedures to identify the environmental aspects of its activities, products, or services that it can control and over which it can be expected to have an influence, in order to determine those (aspects) which have or can have significant impacts on the environment. (ISO Element 4.3.1)	AFI 32-7062, Air Force Comprehensive Planning (1 October 1997) AFI 32-1032, Planning and Programming Appropriated Funded Maintenance, Repair, and Construction Projects (1 September 1999)	Establishes the AF comprehensive planning program for development of AF installations. It incorporates AF programs such as, operational, environmental, urban planning , and others, to identify and assess development alternatives and ensure compliance with applicable federal, state, and local laws and policies. Provides guidance and instruction for planning and programming military projects. Initiates environmental review for projects funded with appropriated dollars.

EMS Element	Air Force References	Comments
	AFI 32-1022, Planning and Programming Non-Appropriated Funded Maintenance, Repair, and Construction Projects (1 June 1994)	Provides guidance and instruction for planning and programming military projects. Initiates environmental review for projects funded with non-appropriated dollars.
	AFI 32-1021, Planning and Programming Facility Construction Projects (1 May 1994)	Provides guidance and instruction for planning and programming construction and maintenance projects.
	Draft AFI 32-7080, Compliance Assurance and Pollution Prevention - Chapter 3 (26 May 2000)	Provides objectives for assuring compliance in each environmental program area (e.g., air quality).
	AFI 32-7086, Hazardous Materials Management (1 August 1997)	Provides process for making weapon system modifications.
	AFI 32-7061, The Environmental Impact Analysis Process (24 January 1995)	Provides instruction in how to comply with NEPA. Based on new major federal actions. Helps identify new or altered compliance sites resulting from new or changed activities or processes. Does not identify aspects based on activities, products, and services. Only focussed on compliance with NEPA.
	Draft AFI 32-7080, Compliance Assurance and Pollution Prevention (26 May 2000) - Paragraph 4.3.3.2	“The HMMP team will review new installation NEPA documents for changes to the compliance site inventory identified.”
	Draft AFI 32-7080, Compliance Assurance and Pollution Prevention (26 May 2000) - Section 4.3 Compliance Site Inventory and Section 4.4 Compliance Site Prioritization	Requires installations to develop and prioritize a consolidated compliance site inventory.
The organization shall ensure that the aspects related to these significant impacts are considered in setting its environmental objectives. (ISO Element 4.3.1)	Draft AFI 32-7080, Compliance Assurance and Pollution Prevention - Attachment 2 (26 May 2000)	Hazard Risk Assessment Matrix and Operational Risk Management (ORM) Process For Evaluating Compliance Sites. Only focussed on compliance sites. No wider environmental aspect approach.

EMS Element	Air Force References	Comments
The organization shall keep this information up-to-date. (ISO Element 4.3.1)	Draft AFI 32-7080, Compliance Assurance and Pollution Prevention (26 May 2000) - Paragraph 4.3.3.2	The requirement to review new installation NEPA documents for changes to the compliance site inventory partially addresses this element. However, there is not a procedure for identifying all environmental aspects and keeping them up-to-date.
Legal and Other Requirements		
The organization shall establish and maintain a procedure to identify and have access to legal and other requirements to which the organization subscribes, that are applicable to the environmental aspects of its activities, products or services. (ISO Element 4.3.2, CEMP Performance Objective 2.1)	Environmental Governing Documents PRO-ACT Fact Sheet (October 1996 - TI#11275) Environmental Authorities (1 Jul 99) shown in Appendix 2 of Installation CAPP Guide (December 2000) AFI 32-7005 Environmental Protection Committees (25 February 1994) The Air Force has established through AFCEE three Regional Environmental Offices (REOs)	Available from AFCEE web site. Not available on any web site. Defines composition of EPCs. Representative of the Judge Advocate General office (USAF/JA) included. HQ USAF EPC reviews environmental legislation and regulations. Provides regional legal assistance to AF installations from three regional offices located at Dallas, San Francisco, and Atlanta.
Objectives and Targets		
The organization shall establish and maintain documented environmental objectives and targets at each relevant function and level within the organization. (ISO Element 4.3.3, CEMP Performance Objective 3.2)	Draft AFI 32-7080 Compliance Assurance and Pollution Prevention (26 May 2000) – Chapter 3 ECAMP Documents <ul style="list-style-type: none"> • TEAM Guide • The Air Force Supplement for TEAM Guide • The State and Territory Supplements • MAJCOM ECAMP Supplement • OCONUS Compliance Assessment Protocol (OCAP) • OCAP, Air Force Supplement The OCONUS OCAP Overseas Environmental Baseline Guidance Document (OEBGD)	Sets the strategy, goals, and objectives for the Air Force CAPP Program. Does not set targets. These ECAMP documents define objectives for each level within the Air Force. However, targets are not defined.

EMS Element	Air Force References	Comments
When establishing and reviewing its objectives the organization shall consider legal and other requirements, its significant environmental aspects, its technological options and its financial, operational and business requirements, and the views of interested parties. <i>(ISO Element 4.3.3, CEMP Performance Objective 3.2)</i>	Draft AFI 32-7080 Compliance Assurance and Pollution Prevention (26 May 2000) – Chapter 3	Maintaining full compliance with all applicable environmental laws, regulations, and requirements is listed as the first goal of the CAPP Program.
The objectives and targets shall be consistent with the environmental policy, including the commitment to prevention of pollution. <i>(ISO Element 4.3.3, CEMP Performance Objective 3.2)</i>	Draft AFI 32-7080 Compliance Assurance and Pollution Prevention (26 May 2000) – Chapter 3	Describes the goals and objectives of the CAPP program and commits to full compliance with legal requirements and Air Force policy. The Air Force is committed to using pollution prevention as the primary choice to achieve compliance.
Environmental Management Program(s)		
The organization shall establish and maintain (a) program(s) for achieving its objectives and targets. <i>(ISO Element 4.3.4, CEMP Principle 2)</i>	AFPD 32-70 Environmental Quality (20 July 1994)	Establishes the Air Force Environmental Quality Program. Defines four pillars to the program: cleanup, compliance, conservation, and pollution prevention.
	AFI 32-7006 Environmental Program in Foreign Countries (29 April 1994)	Establishes the OCONUS Environmental Program.
	AFI 32-7020 The Environmental Restoration Program (19 May 1994)	Establishes the Environmental Restoration Program.
	AFI 32-7080 Pollution Prevention Program (12 May 1994)	Establishes the Pollution Prevention Program.
	Draft AFI 32-7080 Compliance Assurance and Pollution Prevention (26 May 2000)	Combines the Pollution Prevention and Compliance programs.
Pollution prevention is established as a program with supporting procedures. <i>(CEMP Performance Objective 2.3)</i>	AFPD 32-70 Environmental Quality (20 July 1994) Draft AFI 32-7080 Compliance Assurance and Pollution Prevention (26 May 2000)	Establishes the pollution prevention program. Describes the pollution prevention program and provides implementing policy and procedures.

EMS Element	Air Force References	Comments
The program shall include: designation of responsibility for achieving objectives and targets at each relevant function and level of the organization. <i>(ISO Element 4.3.4, CEMP Performance Objective 2.1)</i>	AFI 32-7005 Environmental Protection Committees (25 February 1994)	The EPC at each level of the Air Force reviews performance against objectives and targets.
the means and time -frame by which they are to be achieved <i>(ISO Element 4.3.4, CEMP Performance Objective 2.1)</i>	Draft AFI 32-7080 Compliance Assurance and Pollution Prevention (26 May 2000) – Chapter 3	Many of the specific objectives include an indication of the means and timeframes for their achievement.
Ensure that compliance assurance and pollution prevention plans and goals are established. <i>(CEMP Performance Objective 2.1)</i>	Draft AFI 32-7080 Compliance Assurance and Pollution Prevention (26 May 2000) – Section 4.1	Requires the development of Compliance Assurance and Pollution Prevention Management Action Plans.
If a project relates to new developments and new or modified activities, products or services, program(s) shall be amended where relevant to ensure that environmental management applies to such projects. <i>(ISO Element 4.3.4, CEMP Performance Objective 3.2)</i>	AFPD 90-1 Policy Formulation - Section 3 (1 September 1998) AFI 32-7061 Environmental Impact Analysis Process (24 January 1995) AFI 32-7005 Environmental Protection Committees (25 February 1994) Draft AFI 32-7080 Compliance Assurance and Pollution Prevention (26 May 2000)	Requires the Office of Primary Responsibility for each AFPD to perform a biennial review and update AFPDs as needed. The inclusion of new activities, products, and services undergoes a NEPA review based on the guidelines in this AFI. The EPC at an installation or MAJCOM reviews environmental impact analyses for new proposed actions. EPCs at all levels recommend program changes to accommodate new developments and modified activities.
IMPLEMENTATION AND OPERATION		
Structure and Responsibility		
Roles, responsibility and authorities shall be defined, documented and communicated in order to facilitate effective environmental management. <i>(ISO Element 4.4.1, CEMP Performance Objectives 1.1 and 4.1)</i>	AFPD 32-70, Environmental Quality (20 July 1994) , Section 1.2 and 1.5 AFI 32-7005, Environmental Protection Committees (25 February 1994), Section 4.3	Directive establishes authorities and responsibilities for environmental protection policy matters, execution and guidance, and implementation. Instruction defines roles for management across the organization for reviewing policy and programs and establishes documentation procedures.

EMS Element	Air Force References	Comments
Environmental program responsibilities also must have defined accountabilities. <i>(CEMP Performance Objective 4.1)</i>	Draft AFI 32-7080, Compliance Assurance and Pollution Prevention	Section 4B provides environmental program responsibilities with defined accountabilities for Compliance Assurance and Pollution Prevention.
Management shall provide resources essential to the implementation and control of the environmental management system. Resources include human resources and specialized skills, technology and financial resources. <i>(ISO Element 4.4.1, CEMP Performance Objective 1.1.2)</i>	AFPD 32-70 Environmental Quality (20 July 1994) – Section 4 AFI 32-7001 Environmental Budgeting (9 May 1994) AFI 32-7001 Environmental Budgeting (9 May 1994) Section 2.14	The Air Force will seek sufficient funding to carry out all environmental activities needed to meet its legal obligations. Provides organizations maximum leverage to flexibly manage environment-related budgets. Encourages a team approach for cleanup program to include BEE and JA resources (similarly represented in several instructions and directives).
The organization's top management shall appoint (a) specific management representative(s) who, irrespective of other responsibilities, shall have defined roles, responsibilities and authority for: <i>(ISO Element 4.4.1, CEMP Performance Objective 4.1)</i>	AFI 32-7005 Environmental Protection Committees (25 February 1994)	"EPC members ensure that their areas of responsibility are considered in the interdisciplinary approach required to ensure proper consideration of environmental quality."
Ensuring that environmental management system requirements are established, implemented and maintained in accordance with this International Standard; <i>(ISO Element 4.4.1)</i>	N/A	The Air Force has not committed to ISO 14001 – hence no such management authority to conform with the international standard exists.
reporting on the performance of The environmental management system to top management for review and as a basis for improvement of the environmental management system. <i>(ISO Element 4.4.1, CEMP Performance Objective 4.1)</i>	AFI 32-7005 Environmental Protection Committees (25 February 1994)	Installation level EPCs review policy and resources and recommend changes, which are communicated to headquarters level EPCs and AF Regional Compliance Offices.

EMS Element	Air Force References	Comments
Training, Awareness, and Competence		
<p>The organization shall identify training needs. It shall require that all personnel whose work may create a significant impact upon the environment, have received appropriate training.</p> <p><i>(ISO Element 4.4.2, CEMP Performance Objective 3.1)</i></p>	<p>AFI 32-7001, Environmental Budgeting (9 May 1994)</p> <p>AFI 32-7040, Air Quality Compliance (9 May 1994) Section 2.6</p> <p>AFI 32-7042, Solid and Hazardous Waste Compliance (12 May 1994), Section 2.3</p>	<p>Provides funding mechanism for environmental education and training.</p> <p>Requires appropriate training/certification of operators at sources.</p> <p>Requires all personnel receive and successfully complete appropriate training and refreshers.</p>
It shall establish and maintain procedures to make its employees or members of each relevant function and level aware of:		
<p>the importance of conformance with environmental policy and procedures and with the requirements of the environmental management system;</p> <p><i>(ISO Element 4.4.2, CEMP Performance Objective 3.1)</i></p>	<p>AFI 32-7045, Environmental Compliance Assessment and Management Program (1 July 1998)</p>	<p>Internal ECAMPS include cross-functional team that provides dissemination of environmental policy, impacts, and responsibilities.</p> <p>External ECAMPS allow identification of non-compliance without regulatory involvement. Commanders' involvement significantly increases awareness and provides for recognition of personal performance.</p>
<p>the significant environmental impacts, actual or potential, of their work activities and the environmental benefits of improved personal performance;</p> <p><i>(ISO Element 4.4.2)</i></p>	<p>Draft AFI 32-7080 Compliance Assurance and Pollution Prevention (26 May 2000)</p>	<p>Section 4.30 describes these responsibilities assigned to Organization Unit Environmental Coordinators (UECs).</p>
<p>their roles and responsibilities in achieving conformance with the environmental policy and procedures and with the requirements of the environmental management system, including emergency preparedness and response requirements;</p> <p><i>(ISO Element 4.4.2, CEMP Performance Objective 3.1)</i></p>	<p>Draft AFI 32-7080 Compliance Assurance and Pollution Prevention (26 May 2000)</p> <p>AFPD 32-40 Disaster Preparedness (1 May 1997)</p> <p>AFI 32-4001 Disaster Preparedness Planning and Operations (1 May 1998)</p> <p>AFI 32-4002 Hazardous Material Emergency Planning and Response Program (1 Dec 1997)</p>	<p>Section 4B describes the responsibilities for the CAPP Program. Attachment 1 (Glossary Of References And Supporting Information) provides mandatory compliance with various Air Force policy and guidance.</p>

EMS Element	Air Force References	Comments
	AFMAN 32-4004 Emergency Response Operations (1 Dec 1995) AFMAN 32-4013 Hazardous Material Emergency Planning and Response Guide (1 Aug 1997) AFPD 32-30 Explosive Ordnance Disposal (2 Jul 1994)	
the potential consequences of departure from specified operating procedures. <i>(ISO Element 4.4.2, CEMP Performance Objective 3.1)</i>	Environmental Incident Investigation Board (EIIB) and NOTAM Process	Allow cross feed of consequences of departure from regulatory and Air Force procedures.
Personnel performing the task, which can cause significant environmental impacts, shall be competent on the basis of appropriate education, training and/or experience. <i>(ISO Element 4.4.2, CEMP Performance Objective 3.1)</i>		Position classifications, Internal AF training Symposiums, AFIT training, and individual requirements of AFIs which call for job specific training.
A formal reward and recognition system has been instituted for environmental achievements. <i>(CEMP Performance Objective 4.2)</i>	Air Force Suggestion Program (AF Form 1000) and Air Force General Thomas D. White Environmental Awards	These award programs recognize outstanding efforts to preserve and enhance the environment. They cover all aspects of the Air Force environmental program.
Communication		
With regard to its environmental aspects and environmental management system, the organization shall establish and maintain procedures for:		
internal communication between functions and levels of the organization; <i>(ISO Element 4.4.3, CEMP Performance Objective 3.3)</i>	AFI 32-7005 Environmental Protection Committees (25 February 1994)	The EPCs at all levels provide the focus point for communication of environmental program information across functional groups. Meeting minutes are prepared and communicated up the chain-of-command to the higher level EPC.

EMS Element	Air Force References	Comments
<p>receiving, documenting and responding to relevant communication from external interested parties.</p> <p><i>(ISO Element 4.4.3, CEMP Performance Objective 3.3)</i></p>	<p>AFPD 35-1 Public Affairs Management (17 September 1999)</p> <p>AFI 35-101 Public Affairs Policies and Procedures (1 December 1999)</p>	<p>Establishes Air Force Public Affairs as the office with responsibility for communication with the public and interested parties on matters concerning Air Force activities. Public Affairs responsibilities must be established within each Air Force organization – including at the installation level.</p> <p>Establishes policies and procedures for communicating with external interested parties.</p>
<p>The organization shall consider processes for external communication on its significant environmental aspects and record its decision.</p> <p><i>(ISO Element 4.4.3, CEMP Performance Objective 3.3)</i></p>	<p>AFI 32-7045, Environmental Compliance Assessment and Management Program (1 July 1998)</p>	<p>Instruction allows for the public release of Final ECAMP report to public.</p>
Environmental Management System Documentation		
<p>The organization shall establish and maintain information in paper or electronic form, to:</p> <p><i>(ISO Element 4.4.4, CEMP Performance Objectives 3.2 and 3.3)</i></p>	<p>http://afpubs.hq.af.mil/afpubs.stm</p>	<p>All Air Force policy documents and instructions available in paper or electronic format from Air Force Publications office.</p>
<p>describe the core elements of the management system and their interactions;</p> <p><i>(ISO Element 4.4.4, CEMP Performance Objectives 3.2 and 3.3)</i></p>	<p>AFPD 32-70 Environmental Quality (20 July 1994)</p>	<p>Established environmental quality program and its four pillars. Series of supporting AFIs and guidance documents formalize the interactions of the EMS and fully describe its key elements.</p>
<p>provide direction to related documentation.</p> <p><i>(ISO Element 4.4.4, CEMP Performance Objective 3.3)</i></p>		

EMS Element	Air Force References	Comments
Document Control		
The organization shall establish and maintain procedures for controlling all documents required by this International Standard to ensure that: <i>(ISO Element 4.4.5)</i>	AFMAN37-1, Information Management (19 November 1993), AFMAN37-104, Managing Information to Support the Air Force Mission (1 June 1995), and AFMAN37-139, Records Disposition Schedule (1 March 1996) (AFMAN 33-339)	Provides policies, procedures, guidance, and assistance in proper maintenance and disposition of all record holdings including creating, processing, transferring, disseminating, using, storing, retrieving, preserving, and disposing of records in any media. In summary, requires records management, document control, and disposition of obsolete documentation.
they can be located; <i>(ISO Element 4.4.5, CEMP Performance Objective 3.3)</i>	AFMAN 37-104, AFMAN37-123, Management of Records, 31 August 1994	Records management and disposition programs.
they are periodically reviewed, revised as necessary and approved for adequacy by authorized personnel; <i>(ISO Element 4.4.5, CEMP Performance Objective 3.2)</i>	AFMAN 37-123, Staff Assistance Visits (SAVs) are tracked in AF Records Information Management System (RIMS). ECAMP inspection's review record.	Media-specific AFIs require record keeping maintenance to comply with regulations.
the current versions of relevant documents are available at all locations where operations essential to the effective functioning of the environmental management system are performed; <i>(ISO Element 4.4.5, CEMP Performance Objective 3.3)</i>	AFPD 37-1, is designed for skillful management of information resource to save money and help people work effectively.	Although there is an existing AF requirement, interviews from three pilot programs and Oregon Air National Guard indicated that this requirement has been difficult to implement due to resource constraints and priority given to compliance issues. Accessibility issue resolved by using Environmental Management (EM) web page/intranet site to distribute current versions of relevant documents.
obsolete documents are promptly removed from all points of issue and points of use or otherwise assured against unintended use; <i>(ISO Element 4.4.5, CEMP Performance Objective 3.3)</i>	AFMAN 37-104	Obsolete documents can be removed or replaced using an EM web page/intranet site. Also, AFMAN 37-104 establishes criteria for disposal or preservation of non-current records based on their administrative, legal, research, historical, or other value.
any obsolete documents retained for legal and/or knowledge preservation purposes are suitably identified. <i>(ISO Element 4.4.5)</i>	AFPD 37-1	Policy fulfills the intent of this requirement.

EMS Element	Air Force References	Comments
Documentation shall be legible, dated (with dates of revision) and readily identifiable, maintained in an orderly manner and retained for a specified period. <i>(ISO Element 4.4.5)</i>	EMS Manual for Warner Robins Air Logistics Center (August 5,1999)	Paragraph 4.3.5 on page 17 requires that "Printed controlled EM documents include a header and footer indicating the lifespan of the document. The printed document is considered obsolete beyond the lifespan date and should be destroyed."
Procedures and responsibilities shall be established and maintained concerning the creation and modification of the various types of document. <i>(ISO Element 4.4.5, CEMP Performance Objectives 3.2 and 3.3)</i>	N/A	
Operational Control		
The organization shall identify those operations, and activities that are associated with the identified significant environmental aspects, in line with its policy, objectives and targets. <i>(ISO Element 4.4.6)</i>	AFI 32-7086, Hazardous Materials Management (1 August 1997) Draft AFI 32-7080, Compliance Assurance and Pollution Prevention (26 May 2000)	HMRPP may fulfill the intent of this requirement. Compliance site inventory may fulfill the intent of this requirement.
The organization shall plan these activities, including maintenance, in order to ensure that they are carried out under specified conditions by: <i>(ISO Element 4.4.6)</i>	AFI 32-7086, Hazardous Materials Management (1 August 1997)	HMRPP may fulfill the intent of this requirement.
establishing and maintaining documented procedures to cover situations where their absence could lead to deviations from the environmental policy and the objectives and targets; <i>(ISO Element 4.4.6, CEMP Performance Objective 3.2)</i>	AFI 32-7086, Hazardous Materials Management (1 August 1997)	HMRPP may fulfill the intent of this requirement.
stipulating operating criteria in the procedures; <i>(ISO Element 4.4.6)</i>	AFI 32-7086, Hazardous Materials Management (1 August 1997)	HMRPP may fulfill the intent of this requirement.

EMS Element	Air Force References	Comments
<p>establishing and maintaining procedures related to the environmental aspects of goods and services used by the organization and communicating on the relevant procedures and requirements to suppliers and contractors.</p> <p><i>(ISO Element 4.4.6)</i></p>	<p>Draft AFI 32-7080, Compliance Assurance and Pollution Prevention (26 May 2000) – Section 4.25.6</p>	<p>Provides requirement for implementation and tracking of Affirmative Procurement Program established under Executive Order 13101.</p>
Emergency Preparedness and Response		
<p>The organization shall establish and maintain procedures to identify potential for and respond to accidents and emergency situations, and for preventing and mitigating the environmental impacts that may be associated with them.</p> <p><i>(ISO Element 4.4.7, CEMP Performance Objective 2.2)</i></p>	<p>AFI 32-4002, Hazardous Material Emergency Planning and Response Program (1 December 1997)</p> <p>AFMAN 32-4013 Hazardous Material Emergency Planning and Response Guide (1 August 1997)</p> <p>AFPD 32-30 Explosive Ordnance Disposal (20 July 1994)</p> <p>AFI 32-3001 Explosive Ordnance Disposal Program (1 October 1999)</p> <p>AFPD 32-40 Disaster Preparedness (1 May 1997)</p>	<p>Addresses all aspects of planning and preparing for emergency response. Addresses responsibilities contained in 29 CFR 1910 and 40 CFR 112, 122, 125, 262, 280, 300, 302, and 761. Requires each installation to have a HAZMAT emergency planning team.</p> <p>Provides detailed guidance for conducting HazMat Emergency Planning and consolidating results into HazMat plan.</p> <p>Requires the Air Force to organize, train, and equip explosive ordnance disposal personnel to protect people, resources, and the environment from the effects of hazardous ordnance.</p> <p>Establishes the Air Force Explosive Ordnance Disposal Program, supporting AFPD 32-30.</p>
<p>The organization shall review and revise where necessary, its emergency preparedness and response procedures, in particular after the occurrence of accidents or emergency situations.</p> <p><i>(ISO Element 4.4.7)</i></p>	<p>AFI 32-4002 Hazardous Material Emergency Planning and Response Program (1 December 1997) – Section 4.4</p>	<p>Requires a post-incident review and critique to evaluate the HAZMAT plan's effectiveness and identify response deficiencies. Appropriate changes are then made to the plan, equipment, and training, as necessary.</p>

EMS Element	Air Force References	Comments
The organization shall also periodically test such procedures where practicable. (ISO Element 4.4.7, CEMP Performance Objective 2.2)	AFI 32-4002, Hazardous Material Emergency Planning and Response Program (1 December 1997), Section 4.6.6 AFMAN 32-4004 Emergency Response Operations (1 Dec 1995)	Requires testing of emergency response capability at least annually.
CHECKING AND CORRECTIVE ACTION		
Monitoring and Measurement		
The organization shall establish and maintain documented procedures to monitor and measure, on a regular basis, the key characteristics of its operations and activities that can have significant impact on the environment. (ISO Element 4.5.1, CEMP Performance Objective 5.1)	Draft AFI 32-7080, Compliance Assurance and Pollution Prevention – Chapter 5 (26 May 2000) AFI 32-7045 Environmental Compliance Assessment and Management Program (1 July 1998)	Checking tools include: <ul style="list-style-type: none"> • Installation ECAMP Audits • Air Force Inspection Agency • Air Force Audit Agency • Program Management Reviews • P2 Reporting Establishes audit processes to monitor and evaluate compliance performance.
This shall include the recording of information to track performance, relevant operational controls and conformance with the organization's environmental objectives and targets. (ISO Element 4.5.1, CEMP Performance Objective 5.1.1)	AFI 32-7005, Environmental Protection Committees (25 Feb 94) - Section B, Paragraph 5. Preparing Minutes and Paragraph 5.4	Requires the meeting secretary to prepare minutes of the EPC meeting within 30 days of convening. The minutes are sent to the higher headquarters EPCs, appropriate Air Force Regional Compliance Offices, and other interested parties.
Formal performance measures and standards are established for environmental program performance monitoring. (CEMP Performance Objective 4.2)	Draft AFI 32-7080 Compliance Assurance and Pollution Prevention (26 May 2000)	Objectives and MOMs established. However, current AF policy does not provide a consistent performance measure development procedure tied to objectives and targets.
Monitoring equipment shall be calibrated and maintained and records of the process shall be retained according to the organization's procedures. (ISO Element 4.5.1)	40 CFR 61 Appendix B Test Methods (sample reference) 40 CFR 300.430 (b)(8)(ii).	Appendix B provides information on calibration and records retention. Quality Assurance Project Plan (QAPP) establishes requirements and standards for laboratories and equipment and requires lead agents to develop sampling and analysis plans which provide a process for obtaining data of sufficient quality and quantity to satisfy data needs.

EMS Element	Air Force References	Comments
<p>The organization shall establish and; maintain a documented procedure for periodically evaluating compliance with relevant environmental legislation and regulations.</p> <p><i>(ISO Element 4.5.1, CEMP Performance Objective 5.1.1)</i></p>	AFI 32-7045 Environmental Compliance Assessment and Management Program (1 July 1998)	Provides documented ECAMP audit procedures. Audits focussed on compliance with legislation and regulations. Internal ECAMP audits are held on at least an annual basis at major installations. External installation ECAMP audits are held every three years.
Nonconformance and Corrective and Preventive Action		
<p>The organization shall establish and maintain procedures for defining responsibility and authority for handling and investigating nonconformance, taking action to mitigate any impacts caused and for initiating and completing corrective and preventive action.</p> <p><i>(ISO Element 4.5.2, CEMP Performance Objective 5.1)</i></p>	<p>AFI 32-70 Environmental Quality (20 July 1994)</p> <p>AFI 32-7005 Environmental Protection Committees (25 February 1994)</p> <p>Draft AFI 32-7080, Compliance Assurance and Pollution Prevention – Chapter 5 (26 May 2000)</p>	<p>Designates commanders at all levels as responsible for full compliance with national and Air Force environmental policy. States that all Air Force employees are accountable for the environmental consequences of their actions.</p> <p>States that EPCs act as the primary executive steering group for compliance.</p> <p>Installation EPCs/ESOHs are responsible for these requirements.</p>
<p>Any corrective or preventive action taken to eliminate the causes of actual and potential nonconformances shall be appropriate to the magnitude of problems and commensurate with the environmental impact encountered.</p> <p><i>(ISO Element 4.5.2)</i></p>	Draft AFI 32-7080, Compliance Assurance and Pollution Prevention – Chapter 5 (26 May 2000)	The findings of ECAMP audits are reviewed by the installation EPC. The EPC defines the responsibility and authority for initiating corrective and preventive actions. Pollution prevention is the preferred solution.
<p>The organization shall implement and record any changes in the documented procedures resulting from corrective and preventive action.</p> <p><i>(ISO Element 4.5.2)</i></p>	Draft AFI 32-7080, Compliance Assurance and Pollution Prevention – Chapter 5 (26 May 2000)	As part of the management review process, the CAPP program is reviewed and evaluated. Part of the review involves using information from the corrective and preventive actions stemming from the ECAMP process.
Records		
<p>The organization shall establish and maintain procedures for the identification, maintenance and disposition of environmental records. These records shall include training records and the results of audits and reviews.</p>	<p>AFI 32-7002 Environmental Information Management System (31 May 1994)</p> <p>AFMAN 37-123 Management of Records (31 August 1994)</p>	

EMS Element	Air Force References	Comments
<i>(ISO Element 4.5.3, CEMP Performance Objective 3.3)</i>	AFI 33-322, Records Management Program (1 December 1998) AFI 37-138 Records Disposition – Procedures and Responsibilities (31 March 1994))	Requires Air Force units at all levels to manage records systematically to ensure that they are complete, accurate, trustworthy and easily accessible. It also requires units at all levels to document their organization, function, and activities and to preserve records by implementing effective life-cycle management procedures within their areas of responsibility. Also establishes Functional Area Records Managers and Records Custodians at each base level unit.
Environmental records shall be legible, identifiable and traceable to the activity, product or service involved. <i>(ISO Element 4.5.3, CEMP Performance Objective 3.3)</i>	AFMAN 37-123 Management of Records (31 August 1994)	Establishes requirements for record quality and control.
Environmental records shall be stored and maintained in such a way that they are readily retrievable and protected against damage, deterioration or loss. Their retention times shall be established and recorded. <i>(ISO Element 4.5.3)</i>	AFMAN 37-123 Management of Records (31 August 1994)	Establishes standard retention times for AF documents and records.
Records shall be maintained, as appropriate to the system and to the organization, to demonstrate conformance to the requirements of this International Standard. <i>(ISO Element 4.5.3)</i>		No Service-wide directive to maintain environmental records in accordance with ISO 14001 specifications.
Environmental management system audit		
The organization shall establish and maintain (a) program(s) and procedures for periodic environmental management system audits to be carried out, in order to: <i>(ISO Element 4.5.4, CEMP Performance Objective 5.1.1)</i>	AFI 32-7045 Environmental Compliance Assessment and Management Program (1 July 1998) – Section 2.5	Introduces the environmental management self-assessment tool but does not identify procedures under which it should be accomplished.

EMS Element	Air Force References	Comments
<p>determine whether or not the environmental management system</p> <ol style="list-style-type: none"> conforms to planned arrangements for environmental management including the requirements of this International Standard; and has been properly implemented and maintained; <p><i>(ISO Element 4.5.4, CEMP Performance Objective 5.1.1)</i></p>	<p>AFI 32-7045 Environmental Compliance Assessment and Management Program (1 July 1998) – Section 2.5</p>	<p>No formal procedures established for conducting EMS audits to verify conformance with ISO 14001 specifications.</p>
<p>provide information on the results of audits to management.</p> <p><i>(ISO Element 4.5.4, CEMP Performance Objective 5.1.1)</i></p>	<p>AFI 32-7045 Environmental Compliance Assessment and Management Program (1 July 1998)</p> <p>Draft AFI 32-7080, Compliance Assurance and Pollution Prevention – Chapter 5 (26 May 2000)</p>	<p>Noncompliance findings sent to EPC (or ESOHC) for review.</p>
<p>The organization's audit program, including any schedule, shall be based on the environmental importance of the activity concerned and the results of previous audits. In order to be comprehensive, the audit procedures shall cover the audit scope, frequency and methodologies, as well as the responsibilities and requirements for conducting audits and reporting results.</p> <p><i>(ISO Element 4.5.4, CEMP Performance Objective 5.1.1)</i></p>	<p>AFI 32-7045 Environmental Compliance Assessment and Management Program (1 July 1998)</p>	<p>AF ECAMP processes are primarily focused on regulatory compliance rather than overall EMS performance.</p>
MANAGEMENT REVIEW		
<p>The organization's top management shall, at intervals that it determines, review the environmental management system, to ensure its continuing suitability, adequacy and effectiveness.</p> <p><i>(ISO Element 4.6, CEMP Performance Objective 5.2)</i></p>	<p>AFPD 90-1 Policy Formulation - Section 3 (1 September 1998)</p> <p>AFPD 32-70 Environmental Quality - Section 5 (20 July 1994)</p>	<p>States that AFPDs will be written and certified by appropriate Secretariat or Air Staff offices and requires the Office of Primary Responsibility for each AFPD to perform a biennial review.</p> <p>Establishes the top management authorities and responsibilities for environmental protection.</p>

EMS Element	Air Force References	Comments
	<p>Draft AFI 32-7080 Compliance Assurance and Pollution Prevention (26 May 2000) – Section 5.4</p> <p>Environmental Protection Committees (25 February 1994)</p>	<p>Requires management at all levels to review and evaluate the CAPP program at defined intervals. It does not define the intervals.</p> <p>Establishes EPCs at Headquarters USAF, MAJCOMs, and installations. A wide inclusion of Air Force offices (not just environmental) is called for to ensure the consideration of environmental issues across the organization. Sets meeting timetables for the EPC groups.</p>
<p>The management review process shall ensure that the necessary information is collected to allow management to carry out this evaluation.</p> <p><i>(ISO Element 4.6, CEMP Performance Objective 5.1)</i></p>	<p>AFI 32-7045 Environmental Compliance Assessment and Management Program (ECAMP) – Section 2.5 (1 July 1998)</p>	<p>Establishes the <i>Environmental Management Self-Assessment</i>. This is not well defined and it only states that the MAJCOM “may require periodic management self-assessments.”</p>
<p>This review shall be documented.</p> <p><i>(ISO Element 4.6)</i></p>	<p>AFI 32-7005 Environmental Protection Committees (25 February 1994) – Section 5</p>	<p>EPC meeting minutes are prepared and distributed. They state the substance of all discussions and decisions.</p>
<p>The management review shall address the possible need for changes to policy, objectives and other elements of the EMS, in light of EMS audit results, changing circumstances and the commitment to continual improvement.</p> <p><i>(ISO Element 4.6, CEMP Performance Objective 5.2)</i></p>	<p>Draft AFI 32-7080 Compliance Assurance and Pollution Prevention (26 May 2000) – Section 5.4</p>	<p>The level of management that defined policies, objectives, and procedures will conduct their review.</p>
<p>Organizations should use benchmarking as a means of fostering continuous program improvement.</p> <p><i>(CEMP Performance Objective 5.1.2)</i></p>		<p>No information found during AF policy and program reviews to indicate the routine use of benchmarking to foster environmental program improvements.</p>

APPENDIX B

Documents Reviewed

1. Oregon Green Environmental Management System (GEMS)
2. Robins AFB, *Environmental Management System Manual*.
3. Karen Winnie, (26 May 1999), *Bullet Background Paper on Robins Implementation of 14000*.
4. Karen Winnie, *Briefing: ISO 14001 Pilot Study Status Report for Robins AFB*.
5. Greg Schirf, CNO - N451E, *Briefing: Navy EMS Overview*.
6. Briefing titled: ISO 14001 at Naval Air Engineering Station, Lakehurst, NJ
7. Briefing titled: Fort Riley Implementation of ISO 14000
8. LtCol Christopher Hazen, USAF/ILEVQ, (21 July 1999), *Briefing: Air Force ISO 14000 Pilot Study Overview for Robins, Sheppard, and Eglin*.
9. Sheppard AFB, *Pilot Projects Baseline Profile for DoD Component ISO 14001*.
10. Agenda for DoD Environmental Management Systems Pilot Study Face-to-Face Meeting 21 Jul 99
11. Briefing titled: Findings and Recommendations for AF ESOH Management Systems ISO 14001 "Shall Matrix" from Robins
12. Technical paper titled: Use of Environment, Health, and Safety Management Systems in the U.S. Air Force by Col Rich Drawbaugh and Lt Col John Garland.
13. AF EMS Gap Analysis Chart
14. ANSI ISO 14001 Standard
15. National Database on EMS (2000 Fact Sheet from U.S. EPA)
16. ESOHC Meeting Notes from 17 Jul 00 meeting
17. Draft CSAF on ESOHMS
18. Briefing titled: DoD Environmental Management Systems Update ESOH Policy Board by Thomas Sachar DUSD [ES] 23 Nov 1999
19. EMSAT Checklists
20. Talking Paper on Strategy for AF EMS Pilot Projects 11 Jul 97
21. Code of Environmental Management Principles (CEMP) Mar 97
22. EMS: An Implementation Guide for Small and Medium-Sized Organizations by NSF International Nov 96
23. ERM-West/STP ISO 14000 Manual Chapter 15 Monitoring and Measurement, Chapter 16 Nonconformance and Corrective and Preventive Action, Chapter 17 EMS Audit, Chapter 18 Management Review
24. DoD Component ISO 14001 Pilot Projects Cost Profile for Robins AFB
25. ISO 1400 EMS Lead Auditor Delegate's Manual version 1.2 issued 11/96 Checking and Corrective Action, Conformance/Registration Audit, and EMS Documentation
26. ANSI ISO 14004 Standard
27. USAF Installation Compliance Assurance and Pollution Prevention (CAPP) Guide – Interim, December 2000.
28. ODUSD(ES), ISO 14001 Environmental Management Systems Pilot Study – Final Report, April 2000.

APPENDIX C

Air Force Policy Documents Reviewed

1. AFD32-10 Installations and Facilities (27 March 1995)
2. AFI32-32-1021 Planning and Programming of Facility Construction Projects (12 May 1994)
3. AFI32-32-1022 Planning and Programming of Non-appropriated Fund Facility Construction Projects (29 June 1994)
4. AFI32-32-1022 Planning and Programming of Appropriated Funded Maintenance, Repair, and Construction Projects (1 September 1999)
5. AFD 32-30 Explosive Ordnance Disposal (20 July 1994)
6. AFD 32-40 Disaster Preparedness (1 May 1997)
7. AFD 32-70 Environmental Quality (20 July 1994)
8. AFI 32-3001 Explosive Ordnance Disposal Program (1 October 1999)
9. AFI 32-4001 Disaster Preparedness Planning and Operations (1 May 1998)
10. AFI 32-4002 Hazardous Material Emergency Planning and Response Program (1 December 1997)
11. AFI 32- 4004 Emergency Response Operations (1 December 1995)
12. AFMAN 32-4013 Hazardous Material Emergency Planning and Response Guide (1 August 1997)
13. AFI 32-7001 Environmental Budgeting (9 May 1994)
14. AFI 32-7002 Environmental Information Management System (31 May 1994)
15. AFI 32-7005 Environmental Protection Committees (25 February 1994)
16. AFI 32-7006 Environmental Program in Foreign Countries (29 April 1994)
17. AFI 32-7020 The Environmental Restoration Program (19 May 1994)
18. AFI 32-7040 Air Quality Compliance (9 May 1994)
19. AFI 32-7041 Water Quality Compliance (13 May 1994)
20. AFI 32-7042 Solid and Hazardous Waste Compliance (12 May 1994)
21. AFPAM 32-7043 Hazardous Waste Management Guide (1 November 1995)
22. AFI 32-7044 Storage Tank Compliance (25 April 1994)
23. AFI 32-7045 Environmental Compliance and Assessment Management Program (ECAMP) (1 July 1998)
24. AFI 32-7047 Compliance Tracking and Reporting (31 March 1994)
25. AFI 32-7060 Interagency and Intergovernmental Coordination for Environmental Planning (25 March 1994)
26. AFI 32-7061 The Environmental Impact Analysis Process (24 January 1995)
27. AFI 32-7062 Air Force Comprehensive Planning (1 October 1997)
28. AFI 32-7064 Integrated Natural Resources Management (1 August 1997)
29. AFI 32-7065 Cultural Resources Management (13 June 1994)
30. Draft AFI 32-7080 Compliance Assurance and Pollution Prevention (26 May 2000)
31. AFI 32-7086 Hazardous Materials Management (1 August 1997)
32. Draft AFI 32-7087 Environmental Education and Training
33. AFI 33-322 Records Management Program (1 December 1998)
34. AFD 35-1 Public Affairs Management (17 September 1999)
35. AFI 35-101 Public Affairs Policies and Procedures (1 December 1999)

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36. AFMAN 37-123 Management of Records (31 August 1994)
 37. AFI 37-138 Records Disposition – Procedures and Responsibilities (31 March 1994)
 38. AFMAN 37-139 Records Disposition Schedule (1 March 1996)
 39. AFPD 48-1 Aerospace Medical Program (22 July 1993)
 40. AFOSH Standard 48-8 Controlling Exposures to Hazardous Materials (1 September 1997)
 41. AFPD 90-1 Policy Formulation (1 September 1998)
 42. AFPD 90-8 Environment, Safety, and Occupational Health (1 January 1999)